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Rochester Trial of Mowing Machines.

A trial of mowing machines, under the direction of the Monroe County Agricultural Society took place on the 26th ult., a short distance west of Rochester. There was present a very large concourse of farmers from all parts of the country, as well as hundreds of spectators, all curious to witness so interesting a contest. Eight different machines were entered, viz :

Manny's Reaper and Mower; a combined machine, with Wood's improvement, by Mr. Wood of Hoosic Falls, Rensselaer County.

Wood's Mower, with Manny's patents; also by Mr. Wood.

Ketchum's Mower; by Howard & Co., of Buffalo.

Ketchum's Mower and Reaper Combined; by Rapalje & Co., of Rochester.

Wheeler's Patent, from Cayuga County.

Forbush's Mower, from Buffalo.

Burrell's Mower, from Geneva.

Russell's Mower; entered by R. H. Pease, of Albany.

The ground chosen, a large field just north of Judge Buell's house, was, in all respects, unfavorable. Its surface was uneven, and the grass short and thin. The performance of most of the machines, under such circumstances, failed to satisfy the farmers present, who scrutinized it with critical and practiced eyes. It is not impossible, indeed it is likely, that the result would have been very different had the test been more fair, or less severe. But as it was, only two of these performed fair and handsome work. These were Manny's and Ketchum's. Both mowed well, and drew forth commendations. But it was evident that Manny's, with Wood's improvement, was the general favorite. Not only was its work admirable, but it presented two peculiar and very important advantages. Its swath was wider than any of its competitors, and it made good clean work, with a much slower motion of the team.

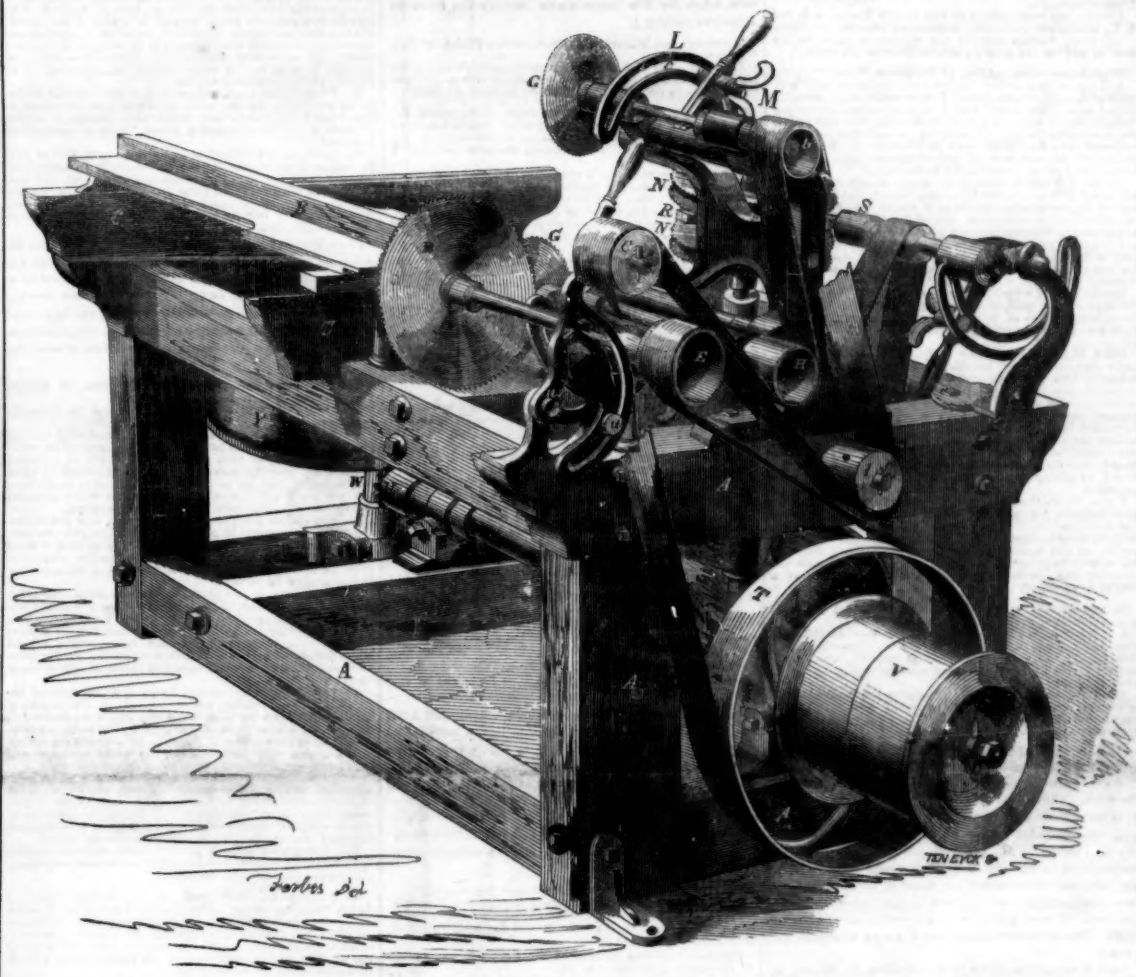
[The above is in substance taken from the Rochester *American* of the 27th ult. We have not yet received the report of the committee on the trial, and the above may be incorrect in many particulars. We know that was the case with the correspondent's report of the N. Y. *Tribune*, relating to the Westchester County trial, the true report of which was published in the last No. SCIENTIFIC AMERICAN.

The report of the *Tribune* had to be corrected by a letter of one of the parties—Allen & Co.—whose machine received high praise by the committee, but was pronounced a failure by the correspondent of that paper.

A Ship Sailing Against the Wind.

We have received a letter from James B. Conger, of Jackson, Tenn., relating to the communication of G. W. Steadman, in the SCIENTIFIC AMERICAN of the 9th June. It states that Mr. S. did not quote Mr. Conger's article correctly, that it was a misquotation, and the only reply he deems necessary is to refer readers to his article in No. 26, page 283.

MACHINE FOR TENNONING BEDSTEAD RAILS.



The accompanying engraving is a perspective view of an improved machine for the above-named purpose, for which a patent was granted to Charles P. S. Wardwell, of Lake Village, N. H., on the 29th of last August.

The nature of the improvements embraced in this machine consists, 1st, of the vertical saw for squaring off the end of the rail; vertical saws for forming the tennon shoulder, and horizontal saws and cutters combined for cutting the tennons. This combination in one machine dispenses with the use of a separate machine for cutting the shoulders of the rails. This machine is capable of completing a tennon before the rail is reversed, or before it is discharged, thus saving considerable time and expense. Second, the improvements further consist in the mode of arranging the shoulder and tennon saws, whereby either of the vertical saws can be changed in position, and adjusted to cut the required depth of shoulder; and the horizontal saws and cutters are so combined as to compensate for wear. Third, it also embraces the employment of one or more cutters between the horizontal tennon saws, in combination with the shoulder saws, whereby two or more tennons may be cut on each end of the rail at one operation. In this machine, there is also a small saw to be used for double tennons, when the space between two is 1½ inches or more;—this the patentee has taken measures to secure by a new patent;—but when the spaces between are less than 1½ inches, the small saw is not used.

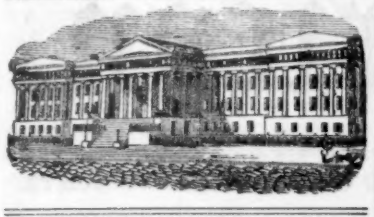
A is the frame of the machine; B is the feed carriage, which moves transversely over the top of the machine, in the ways, C C; D is the saw for squaring off the end of the rail; it is arranged on the arbor of E. This saw is situated near the front part of the machine, and bears such a relation to the end of the feed carriage as to saw off the rough end of the rail before it passes to the shoulder saws. The bearings of this saw, in which the spindle rests, is a swinging hub, Z, with a curved groove in it, having a fastening screw, *u*, to hold it firm in any position in which it is set, and it swings on the other axis pin, *u*. This allows the saw, D, to be moved towards or from the carriage, and to adjust it to suit the various length of tennons. G G are vertical shoulder saws, each secured on the end of a spindle. They stand near the edge of the feed carriage, and they are hung a short distance behind the arbor of the saw, D, so that the bed rail will not come in contact with them until its end has been squared; also not to interfere with one another. The lower saw, G, cuts the lower, and the upper one the top shoulder of a rail.

The arbors of these saws are sustained on a metal stand, mounted on the top of frame, A, and they can be moved nearer to or further apart, like D. The curved slot, *c*, in the stand, L, with its set screw, M, is shown for the upper one. This is for the purpose of adjusting them to cut a shoulder of greater or less depth. The levers on the swinging frames are for operating them to adjust them.

N N are the horizontal tennoning saws attached to a hub, and secured on a vertical spindle. These saws are so arranged that the lower face of one stands, when the machine is not in operation, even with the extremity of the lowest teeth of the upper saw, G, and the lower face of the other, even with the extremity of the highest teeth of the lower saw, G. Consequently, when the machine is in operation, the pieces slitted off by these saws will be the same thickness as the depth of the shoulders formed by G G. These saws are adjusted in the same manner as the saw, D and the shoulder saws, G G. R is a cutter, (there is another not shown,) arranged between these saws, N N, on a disk which is attached to a hub. A space the same width as the required tennon is left between the edge of each cutter and saw. These cutters are employed when it is desired to form two or double tennons on each end of a rail. T is the driving pulley on the main shaft. The belting around the pulleys H E C S, *b*, show how the spindles are driven. O is the belt that drives the vertical spindle of the tennon saws; it runs round the drum, Y, on the shaft, W, which has gearing on the top to feed the carriage, B, with the stuff to be tennoned, into the saw. V are fast and loose pulleys. The movement of the carriage, B, with the rails to be tennoned, is continuous, until the tennons are completed. When a rail is tennoned, its ends are reversed, and the carriage returned to its former position, when the operation of tennoning the other end proceeds in the same manner. This machine operates correctly, and with great rapidity. Its parts are so combined as to render the process of tennoning easily adjusted to various sized tennons, and the process is continuous, from beginning to end, till the tennoning is complete.

The convenient method of adjusting the saws in this machine, and the rapidity and ease with which it operates, we have been assured by the patentee, render it of inestimable value for the purposes specified. It is asserted to be the best of the kind ever put into use.

More information may be obtained by letter addressed to Mr. Wardwell, at Lake Village.



[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office,

FOR THE WEEK ENDING JULY 3, 1855.

SANDPAPER CUTTING MACHINES.—William Adamson, of Philadelphia, Pa.

I claim the employment of thin elastic blades, L L and K K, of uniform thickness, so arranged that the revolving blade shall overlap slightly the stationary blade, in the manner and for the purpose substantially as set forth.

FIRE ARMS.—Ethan Allen, of Worcester, Mass.

I do not claim a rotary charge receiver placed within or applied to a gun barrel, nor do I claim a sliding or movable breech so applied to the barrel as to constitute not only a breech thereto, and a means of uncovering the rear end of the bore of the barrel, and enabling a cartridge to be introduced into the same, but a contrivance for shearing or cutting off the rear part or end of the cartridge after the introduction of such cartridge into the barrel.

Nor do I claim a perforated rotary breech cylinder so combined with or applied to a gun barrel, and entirely in rear of its charge chamber, that it (or its cylinder) may be capable of being rotated or turned in on one direction so as not only to uncover the rear end of such charge chamber, and present a passage or opening through which a charge may be introduced into it, but rotated back so as to cover the rear end of the charge chamber, and constitute a breech thereto.

Nor do I claim a turning lever and breech so applied to the rear end or part of a gun barrel, as to be capable of being turned up so as to uncover such end sufficiently to permit a charge or cartridge to be introduced into the barrel.

But I claim so combining a rotary or movable breech, and a charge chamber together, and with the barrel of a fire-arm, that not only when they (the said breech and chamber) are moved or rotated in one direction, shall the breech uncover the passage into the barrel, and such charge chamber be brought into a position to permit a cartridge to be passed into it and the barrel; but when they (the said breech and chamber) are rotated in the opposite direction, such breech shall be made to cover the passage into the barrel, and such charge chamber, in conjunction with the barrel, be caused to bend, break and hold such cartridge as specified.

I also claim the charge chamber and breech block D, provided with journals and bearings as specified, extending the movable breech F beyond the block in manner as described, in order that not only may said breech serve as a scraper to the inside surface of the case C, but that the block may be protected from the injury and friction of the carbonaceous matter resulting from the explosion of a charge as specified.

RIVING SHINGLES, &C.—A. C. Billings and 3. H. Ruggles, of Palmer, Mass.

1st. We claim giving the proper feed motion to the carriage L by means of the inclined or wedge shaped projection (k), on the gate I, lever Q, and pawl (n), which acts against a rack on the underside of the carriage L, as shown and described.

2d. We claim connecting or attaching the head block N to the carriage L, by means of the spiral spring P, for the purpose of allowing the head-block to yield or give when necessary as set forth.

[The spring P, embraced in the second claim, acts as a buffer when the knife meets with undue resistance from knots in the blocks, or irregular direction of the grain of the wood. The method of feeding or directing the carriage, so as to move the block or bolt for the shingle to be properly cut, is effected by the wedge-shaped projection k in the first claim. When the knife gate has nearly reached the length of its upward stroke, this wedge shaped projection acts against the end of the lever Q, which operates a pawl working in the carriage rack to direct the carriage and its block of wood properly to the action of the riving knife. The whole invention is one of a very excellent nature.]

SELF-REGULATING WIND MILL.—Addison P. Brown, of Brattleboro', Vt.

I claim, 1st, the helical slot and pin, as a means of governing the degree of obliquity of the fans to the wind. 2d, the combination of weights with the helical slots and pins combined and operating in the manner and for the purpose specified.

[An engraving of this invention will soon be published in the SCIENTIFIC AMERICAN.]

BURGLAR'S ALARM.—Ephraim Brown, of Lowell, Mass. I claim arranging the locking and discharging levers, the main and secondary knob rods, the unbolting lever and bolt rods, substantially as specified and represented

I also claim arranging the key levers with respect to the locking and discharging levers as described, and combining such key levers with the locking and discharging levers, by one or two series of sliding pins, or their equivalents, made to operate through holes in a block arranged with respect to the locking and discharging levers, essentially as set forth.

I also claim arranging the alarm apparatus with respect to the locking and discharging levers, as specified; also, arranging the counter wheel or apparatus, and combining it with the alarm apparatus in manner as described, not intending to claim the use of a counting apparatus or register or connection with the alarm apparatus, such having been claimed by me in my former patent. I also claim combining with the lever Q the third knob R, by which said lever may be operated under certain circumstances, as specified.

I also claim arranging the main and secondary knob rods, so that the latter may slide through the former, or the former be made to slide on the latter, under circumstances as specified.

BORING AND TURNING WOOD.—Adolph Brown and Felix Brown, of New York, N. Y.

1st. We claim the manner of guiding and turning round the wood by passing said wood through suitable holes made through the wheels L, thereby allowing the wood to be fed up to the tools, at the same time the same is turned round.

2d. We claim the ring (?) with the tools for cutting off the wood, attached, arranged, and worked as specified.

HARVESTER REELS.—Gardner A. Bruce, of Mechanicsburgh, Ill.

I claim constructing the bars (b) of the reel E, as shown, viz., having the pivots (c) at the end of said bars placed at the edges of the ends, and fitted loosely in holes at the ends of the radial arms (d), so that the bars may, by their own gravity, remain in a vertical position as the reel rotates, for the purpose as set forth.

[The bars (b) of the reel, while it (the reel) rotates, being always in a vertical position, and presenting a broad surface to the grain, allow the cutters to act in a superior manner, and also make the cut grain lie properly on the platform, to be raked off by a self-acting rake, and discharged in excellent gavels into a receiver, which, at proper intervals, tilt each gavel on the ground. The improvement is a very good one.]

GRAIN AND GRASS HARVESTERS.—Sylvester Colburn, of Ansonia, Conn.

I claim the employment of the elastic plates, h, fitted within the fingers B, and acted upon by springs, g, arranged substantially as shown for the purpose set forth.

[The object of the elastic plates h is to prevent the sickle from clogging, and also to keep the cutter teeth sharp by working over the plates, which are made to answer the same purpose as a knife steel.]

MILL STEP.—Julius C. Dickey, of Saratoga Springs, N.Y.: I claim the application of the roller D, and lever E, for adjusting the height of the mill spindle when the latter rests in the tube C, and said tube is secured to the tram-block, in the manner set forth.

ATTACHMENTS FOR LIGHTNING RODS.—Robert D. Dwyer, of Richmond, Va.

I claim constructing a lightning rod holder of but two parts, of such a form that the lightning rod will connect them to each other, at the same time that it combines itself securely with them, substantially as represented and set forth.

LOCKING-LATCHES FOR DOORS.—Edmund Field, of Greenwich, Conn.

I claim nothing new in the locking bolt or catch separately considered, nor yet in merely combining them so that the locking bolt is arranged to shoot into and lock the catch.

But I claim the arrangement substantially as shown and described of the locking bolt B, with F, when these parts are hung and operate together, essentially as set forth, and so that the locking bolt with its tumbler guards and other appurtenance or appurentances, when not being used to lock the door, are set in motion by the catch each time it is operated, substantially as, and for the purposes set forth.

[This lock is for sliding doors and embraces the arrangement of the services named, and is a very ingenious combination for the purpose. French and English Patents have been taken for this improvement through the Scientific American Agency.]

MACHINES FOR WASHING SAND.—George Finley, of Collins Township, Pa.

I claim the use of the jet block, or its equivalent, for the purpose of distributing the sand and water over the surface of the sieve, in the manner and for the purpose set forth.

KNITTING MACHINES.—Thomas Fowler, of Cohoes, N.Y.

The distinguishing characteristics of my improvements in rotary knitting machines for making ribbed work are expressed or indicated in the following statement of what I claim:—

1st. I claim combining a revolving, radiating series of horizontal, fixed hooked needles, and a series of vertical, movable hooked needles, that are so operated within and by a revolving slotted cylinder, or its equivalent, and by cams, as described, that the two series of needles shall operate together, and with one, or more than one set of appliances, each consisting of one sinker and two pressers, and make cylindrical ribbed work substantially as set forth.

2d. I claim combining and arranging the set of movable needles, with the revolving slotted cylinder, and one, or more than one set of stationary cams, each set consisting of the cam E, and a depression, and an elevation in the cam ring D, as described; so that the movable needles shall be successively carried outward to cast off the old stitches from the radial needles, and then downwards to cast off the old stitches from themselves, and, finally, upward and inward to allow the yarn to be again fed upon the radial needles in their revolving course.

And the following improvements, viz.:

1st. I claim the inside guide stitch F, constructed and arranged with the two sets of needles, as described; to help to cast off the old stitches of the radial needles, and to increase the distance between the old stitches and the new ones, upon the movable needles, at the same time their barbs are depressed.

2d. I claim the outside stitch, cam G, constructed and arranged as described, to help cast off the old stitches of the movable needles.

3d. I claim the cam (a), constructed and arranged as set forth, to assist the return of the movable needles to, and to retain them in, the position they occupy during the feeding of the yarn upon the radial needles.

BOOK CLASP.—Charles Folsom, of Cambridge, Mass.

I claim the described book clasp, constructed and operating in the manner as substantially set forth.

HORSE POWER.—H. H. Fultz, of Lexington, Miss.

I claim the application of the driving wheel C, in combination with the shaft A, and pinion D, when constructed and operating in the manner described, for the purpose specified.

[This is a very novel arrangement for a horse power, and its construction involves but little expense. An upright pivoted shaft, A, is provided, from which a horizontal shaft radiates. The outer extremities of this lateral shaft is furnished with a large driving wheel, C, which rests on the ground, and derives its motion from contact therewith, as the horse walks around. By means of pinions, D, gearing with the inner peripheries of the driving wheel, power is communicated to any desired pulley. One or a dozen animals can be put to work, as required. It is one of the cheapest horse-powers that we know of, and is a valuable invention.]

STEAM BOILERS.—James Harshman, of Dayton, Ohio.

I claim forming an external casing or covering of copper for stoves, and all heat-diffusing devices, or apparatuses, and steam boilers, in the manner and for the purposes as herein shown and described.

CUTTING CAVITIES, SPHERICAL, ELLIPSOIDAL, ETC.—Isaac B. Hartwell, of Woodstock, Vt.

1st. I claim the *spherical shell* or cutter O, turning at the same time on the axis of the sphere of which the shell is a part, so as to cut a spherical groove, or a convex and concave surface of less extent than a quadrant of the superfices of a sphere, yet corresponding in shape to the convex surface of a spherical section formed by two planes passing through the sphere at right angles.

2d. I claim the method of giving a compound motion to the *spherical shell* or cutter, by means of the tight gear wheel V, fig. 1, and the loose gear wheel Q, revolving on the axes of the rocking frame J K, so as to be in connection with the pinion E in all necessary positions of the rocking frame J K.

3d. I claim the use of circular saws set in an oblique sliding frame, in connection with the spherical cutter for the purpose of cutting straight grooves to connect with the spherical grooves at each end of the block of wood.

LARD LAMP.—James D. Hays, of Mt. Morris, Ill.

I claim the combination of the cylindrical chamber B, piston E, and the valve D, at the lower end of the wick tube C whereby the lard is retained in the wick tube, when the piston is moved back to refill the chamber B.

[The piston used in this lamp to fill it, and keep the lard close up to the heat of the flame, is a very excellent improvement for the burning of common lard in a superior manner.]

APPARATUS FOR SETTING BOWS TO CARRIAGE TOPS.—Edward Hayes, of Wheeling, Va., and Morgan Hayes, of Washington, Pa.

We claim setting or adjusting the bows A, for carriage tops, by means of a framing constructed substantially as herein shown, and provided with clamps (n), adjustable pieces (h), and adjustable arms or pivots (i), as described.

[By this invention the bows may be set in a perfect manner, and with great facility. All that the workman has to determine is the size of the top required. The top of the framing is then contracted or enlarged by adjusting the pieces *h*.]

REGULATING THE ISSUE APERTURES, AND OF SUSPENDING TURBINE WHEELS.—Birdsill Holley, of Seneca Falls, N. Y.

I claim the mode described of opening and closing the issues, and regulating their extent, in combination with the mode of hanging the revolving wheel, as set forth.

GRAIN AND GRASS HARVESTERS.—William H. Hovey, of Springfield, Mass.

I claim the employment of the "clearers" (i), attached to the bar F, and working in the recesses (e), of the fingers (b), for the purpose of preventing the choking or clogging of the sickle as shown, the bar F being connected to one or more of the cutters (f), by pivots (j), by which motion is communicated to them.

[The object of this improvement is the more perfect prevention of clogging, which, in spite of the many devices tried for this purpose, is still an evil belonging to most reaping machines. The clearers i are plates which work in recesses between the fingers.]

HANGING PLANE STOCKS AND THEIR MOUTH PIECES.—M. G. Hubbard of New York, N.Y.

I claim the construction and attachment of the plane stock and pressure bar (b), to the bed frame of the planing machine, by which the pressure of the bar is regulated, and the bar and plane stock can be turned back to sharpen the plane.

I also claim jointing the floating or front plane to springs, or bars turning on a pivot to rise and fall, as above set forth, over the inequalities of the boards, as above specified.

MACHINES FOR MAKING RIVETS.—Frederick W. Hoffman and Chs. W. Gustav Fougan, of the County and State of New York.

We claim the knife 25 so arranged in relation to the lower jaw, or jaws, and the header, that while it serves as a cutter, it also moves up the inclined plane jaw, and forms a solid support for the rear end of the blank during the making of the head, as set forth.

ATTACHING THE CONNECTING BAR TO THE CUTTERS OF HARVESTERS.—James Little & Wylie Little, of Princeton, Ind.

We claim connecting the pitman or connecting rod G to the sickle bar F, by means of the cylindrical projection (i), on the end of said bar, and the loop (j), at the end of the connecting rod as shown, whereby the pitman may be readily connected to and detached from the bar F, and at the same time a durable connection or attachment of the bar and pitman obtained.

[This method for connecting and detaching the pitman and cutter bar readily, by the devices named, is a simple and useful improvement.]

SCREW FASTENINGS.—John Loudon and Otto Ahlstrom, of New York, N. Y.

We claim:—1st. Constructing the head of a screw bolt of fixed wedges or inclined pieces a a, and loose expanding pieces b b, whereby the act of screwing up, the nut is caused to expand the said head, for the purpose of making it fit tightly in a suitable cavity or hole in which it is placed, substantially as herein described, or, what is equivalent, constructing the nut with the said fixed wedges or inclined pieces, and expanding side pieces, so that by screwing in the bolt it may, in the same manner, be expanded to fit tightly within a suitable cavity.

2d. Forming the fixed wedges, a a, or inclined side pieces of the bolt or nut up the sides of the bolt, as illustrated in figs. 1 and 2, and herein described, so as to get a great length of bearing for the expanding pieces, with a small-sized bolt head or nut.

3d. Confining the expanding pieces b b, to the bolt or nut, by means of an elastic ring c, substantially as described, which keeps them always in condition to use, on the bolt or nut, and which allows them to expand and to remain parallel during their expansion, and contracts the collar, when the nut or bolt is unscrewed, and allows the bolt or nut to be removed.

[This invention is one of great simplicity, utility and importance, and of unlimited application. It embraces expanding screw bolt heads and nuts, which will enable bars, staunchcons and bolts to be screwed into holes made in stone walls, as easily and as firmly as screws can be secured in timber. The bolts are made according to this invention, are perfect devices for securing iron brackets to masonry, &c.]

SEWING MACHINES.—Jean Pierre Molliere, of Lyons, France. Patented in *France*, May 30, 1854.

I claim of even date with the French patent for the same invention.

1st. The movable fulcrum b, of the graduated sliding piece d, for lengthening or shortening the arm of the lever b c, in connection with the catches f f' f'', for different lengths, whereby the movement of the rack shaft O, or of the pinion P, can be varied at pleasure, so as to produce any length of stitch that may be desired, the whole arranged and operated substantially in the manner described.

2d. The guides T T', or the tooth rack Q, and the rollers G G' G'', for keeping in place the adjustable piece carriers R R, and the tooth rack Q', which steadily pushes forward the piece to be sewed, so as to secure a regular succession of stitches, the whole arranged and operated substantially in the manner described.

3d. The action of the hook, or lever h, when the upper needle carrier is ascending upon the lever i, whereby the point j, bearing upon the rod k, makes it press the piece m against the piece n, so as to seize and hold fast the needles between the shoulders of the pieces m and n, at the moment when the lower carrier has driven them through the piece to be sewed, the whole arranged and operated substantially in the manner described.

4th. The lever F, and its two hooks, x x', for passing beyond the line of sewing, and taking hold of the thread, at the moment when the needles are held above the plates S S, and pulling it after them, and closing up the seam, together with the apparatus, fig. 5, plate I, for overcoming the obstacle arising from short threads; the whole arranged and operated substantially in the manner described.

5th. The stopping levers 4, and 4', figure 7, plate I, for arresting the two needle carriers in their course, when the thread breaks, which, by throwing the bolt 10 out of perpendicular, ungear the catches f f' f'', by the piece K H, and so bring the machine to a stop; the whole arranged and operated substantially in the manner herein described.

6th. The sowing of every kind of seam, whether straight or crooked, by what is known as the shoemaker's stitch, in the manner substantially described.

TRIP HAMMERS.—Milo Peck, of New Haven, Conn.:—I do not claim the lifting apparatus described by itself; this has already been secured to me by letters patent, November 25, 1851; but I claim so controlling the admission and exit of air above the piston, that the force of the blow given by the hammer may be regulated by the condensation and attenuation of the air, as set forth.

DRESSING CONICAL TAPERING SURFACES.—Paul Peckham, of Petersham, Mass.:—I claim the arrangement and application of the depressing rest C, with respect to the hollow tubular cutter stock, substantially as described, so as to enable a person to dress or round a tapering stick of wood in manner as specified.

MOWING MACHINES.—Samuel Rockafellow, of Coatsville, Pa.:—I claim raising and depressing the finger bar K, and consequently the cutters e f by means of the vertical bars M M, having wheels O O at their lower ends, arm P, attached to the cross piece N, of the bars M M, lever Q, and shaft R, with its arm S attached. The above parts being arranged substantially as shown and described.

[This improvement affords a ready means for raising and depressing the finger bar and cutters by simply operating the arm S.

MACHINE FOR SHUCKING AND SHELLING CORN.—John S. Rollow, of Fredericksburgh, Va.:—I claim the diagonal ribbed perforated concave when hinged at the upper end, and supported on springs at the lower end in combination with the diagonal ribbed cylinder, substantially as and for the purpose specified.

FEEDING SHEETS OF PAPER TO PRINTING PRESSES.—A. H. Rowand, of Alleghany City, Pa.:—I claim the employment of the swinging frame E, provided with the rollers G e, in combination with the vibrating arm N, and clamp or lip g, operated by the slotted bar S. The parts being arranged as shown, and operating in the manner and for the purpose as set forth.

[This machine is designed to supercede hand feeding. The sheets are laid on a pile, and led in by automatic movements to the press, through the devices embraced in the claim.]

CUTTING STRAIGHT OR CURVED MORTISES.—Q. Smith, of Cincinnati, Ohio:—I claim the two segment pieces F F, placed at an angle to each other, or straight, so as to direct the lateral movement of the mortising chisel in a curved or right line, and thereby form a curved or straight mortise, as mentioned, all substantially, for the purposes set forth.

CORN PLANTERS.—William Stinson, of Georgetown, Pa.: I am aware that spades similar to mine have been used, but I claim the arrangement of the seed rollers and corn box in the spoke of the wheel, in combination with the spade, as set forth.

LOOMS.—S. T. Thomas, of Lawrence, Mass.:—I claim the improvement of working the picker staff in opposite directions, by means of a flexible staff having sufficient stiffness to move said picker staff backward, when said strap is moved by a lever, substantially as described.

I also claim combining with the operating lever X, and the forked lever Y, of the stop motion, a lever or pitman d', and a tripping or rocker lever l', or the equivalent thereof, the same being for the purpose of operating the lever of the shipper, and relieving the forked lever Y, of strain as specified, the said improvement enabling to be used a forked lever Y, of great lightness and delicacy of construction, and capable of being operated by the finest qualities of weft and thread.

I do not claim applying a friction pully and band to the yarn beam, nor do I claim sustaining the warp by means of a guide roller supported by upright levers, operated with weighted levers by two sectors and gears, and for the purpose of maintaining an equality of tension on the warp during the weaving operation, but what I do claim is arranging and combining the friction pully, p', the band, l', the levers, s', and spring, x', or its equivalents, so as to operate together, and with respect to the yarn beam, substantially as specified.

LOOMS.—S. T. Thomas, of Lawrence, Mass.:—I claim combining with each rocker lever L and the lifter R, thereof, an arm, N, cam, a, and sector, O, or the equivalent or equivalents thereof, the whole being applied together, and made to operate in the manner essentially as specified.

I also claim combining with the series of lifters, R R, and the pattern prism, k, a series of bent levers, f f, or their equivalents, and imparting to the pattern prism, vertical, or up and down movements, as described, the same being to produce advantages as stated.

I also disclaim, when the upper and lower sets of cords of a harness are supported by pulleys as described applying both said upper and lower sets of cords to one and the same end of a lever operated by a cam, having a continuous rotation as described.

I also claim combining with the star cam and lever, for moving a set of shuttle boxes, a mechanism substantially as described, for imparting an accelerated movement to the set of shuttle boxes as explained, the said mechanism consisting of the additional lever, d, the movable wedge, b', and its operative mechanism, as described.

I also claim the above described arrangement of a Jacquard, the wires thereof, the impelling pauls, and the star cams, and their shaft, whereby one Jacquard apparatus applied at one end of the loom, is made to operate two independent shuttle motions of the loom, as explained.

I also claim so applying to the main shaft a friction clutch wheel, and a fly or balance wheel, that the fly may run loosely upon the shaft, and be capable of being moved either towards, or away from the friction clutch, in combination with so connecting the fly with the shipper that the said fly shall be moved laterally during, and by the movements of the shipper, as described.

I also claim, combining with the friction wheel and the shipper, as described, a brake mechanism for throwing said brake, g3, into and out of operation, as specified, such mechanism consisting of the lever latch, h3, the projection, l3, and spring, f3, as specified.

SPRING BED BOTTOMS.—Hiram Tucker, of Cambridgeport, Mass.:—I am aware that an inflexible bar, extended entirely across the frame, and supported on spiral springs, has been used in a bed foundation. I do not claim such, nor consider such as making part of my invention, as it is liable to sag in the middle, and is objectionable in other respects.

I do not claim an arrangement of helical springs, and horizontal and transverse bands, wherein not only is each of the longitudinal bands connected to its supporting frame by a helical spring extended from each end of such band to the adjacent end or bar of such frame, but each transverse band or strip of spring steel is connected to the frame by four helical springs, two of which are fastened to each end of such strip.

But I claim arranging and connecting the inflexible bar, B, and lifter, and counter sway spring (or their equivalents), together, and with the frame A, so that each, when a mattress is laid upon it, shall extend under, and give support to such mattress, and operate as an elastic foundation therefor, substantially in the manner stated.

HORSE COLLAR BLOCKS.—T. J. Van Benschoten, of Poughkeepsie, N.Y.:—I claim nothing new in the arrangement of the one screw rod between the two jaws, nor yet in the mere arrangement of the three jaws or blocks, and the effecting of a longitudinal and lateral stretch to the collar, by the one operation of the screw; when these parts have been differently operated, as such have before been used.

But I claim the arrangement and operation together, substantially as shown and described, of the obliquely sliding back jaws, c, along either side or edge of the collar, on its interior, with the stationary front jaw, to the narrow or upper end of the collar, as, and for the purposes set forth, and whereby the advantages specified are obtained.

And I further claim giving to the obliquely sliding jaws, c, acting separately, but in concert, increased freedom of action or play on their ways, to effect simultaneously the lateral and longitudinal stretch of the collar by connecting the freely supported operating screw nut, E, with the obliquely sliding jaws, by spring arms, f, as set forth.

[This improvement in the blocks for making the horse collar will save much labor. By the movement of a screw, the movable jaws are distended to form the collar of the proper size and shape. The improvement is not only good with respect to facilitating the work in making collars, but it also combines simplicity with utility.]

HEATING FEED WATER TO STEAM BOILERS—Robt. Wilson, of Columbus City, Iowa: I claim the arrangement of the feed water pipe, e, opening within the exit steam pipe, f, in relation to the exhaust steam pipe, b, within the feed water reservoir, whereby the entire exhaust steam may be condensed, and the entire feed water pass through, operating as and for the purposes set forth.

STOVES—Robt. Wilson, of Columbus City, Iowa: I claim the combined cylinder, stove and oven, connected and supported as described, and lined with removable rolls of sheet iron, for the purpose specified.

SEWING MACHINES—J. B. Woodruff, of Washington, D. C.: I claim, first, the making of the needle bar hollow and providing it with a door or slide, for the purpose of holding incased therein such parts of the machine as may be desired, and this I claim, whether the needle bar be ornamented as described, or otherwise.

I also claim the direct and positive connection of the needle arm and shuttle carrier, by which means they both move simultaneously and in perfect harmony with each other, so that whichever way the pulley is driven, the operation of the machine will be the same, substantially as described.

BEVELING AND POLISHING THE INNER EDGES OF DAGUERREOTYPE FACE PLATES OR MATS—Edward Brown, of Waterbury, Ct. (assignor to the Scoville Manufacturing Co.) I claim the combination of the rotary burnisher, f, and vibrating or yielding frame, O, arranged and operating as shown, and for the purpose set forth.

[The article known as the daguerreotype mat, is the ornamental plate or inner frame which accompanies the miniature portrait when completed by the daguerreotypist.—These mats are struck by means of a die out of sheet brass. They are afterwards put into a lathe, where their surfaces are ornamented in the most beautiful manner. Then they are dipped and burnished, which increases their beauty, and renders them really magnificent. The machine above patented accomplishes an important purpose in beveling and burnishing the edges of the mat. It saves a great deal of hand labor, and is a highly valuable invention. The beveling has therefore been done with files by hand. The mats made by the Scoville Company are in general use throughout the country, and are well known for their excellence.]

MITERING PRINTERS' RULES—Wm. McDonald, (assignor to R Hoe & Co.) of New York City: I do not claim the plate, A, and plane, D, for they are well known, and in general use.

But I claim attaching to the bed, A, and framing, B, a sector guide plate, E, to which plate the bed, F, is secured by a set screw, G, the bed, F, having a curved projection, e, attached to it, which projection works in a recess or groove, a, in the plate, E, by which the bed, F, may be adjusted at the desired angle with the plate, A, and the ends of the rules beveled or cut, as shown and for the purpose set forth.

[The object of beveling the ends of the rules is to form miter joints in locking them together in rectangular form for the borders enclosing the type.]

WATER METER—James Curtis and Samuel Hoard, of Chicago, Ill.: First, though we do not claim the invention of a meter composed of two cylinders or chambers, of which one is filled while the other is discharged, we claim the employment of two chambers, having such communication with each other, that the incoming water entering each cylinder or chamber, in its turn, will expel a volume of air previously contained therein, and drive it into the other cylinder or chamber, and cause the said air to act as a piston to separate from the incoming water, and to discharge, through the agency of the pressure thereof, the water in the other cylinder or chamber, substantially as described.

Second, though we do not claim the invention of a float valve to shut off the flow of the fluid through a meter, in case of the parts becoming deranged, we claim fitting a float-valve, f, to each end of the pipe, J, through which the air is transferred from one to the other of the two measuring cylinders or chambers, substantially as described, so that in whichever cylinder the water should rise above its proper level by reason of the derangement of the inlet and outlet valves, the pipe, J, will be closed and the flow of water stopped.

[The object of this meter is to measure and register the exact quantity of water which flows through it in a given time. Various meters for such a purpose have been invented and used before, but the improvements specified in these claims, it is believed, will render them more accurate, and less liable to get out of order.]

COTTON PRESSES—Augustus M. Glover, of Waterborough, S. C.: I claim the use of the roller, E, moving with the platen, a, in combination with the rack, c, and pinion, D, as described, for the purpose of preventing the platen touching the sacking in its descent, and keeping the platen in position when below the hopper, and the sides of the bale box removed, as set forth.

CORK MACHINE—John Power, of Boston, Mass.: First, I claim supporting the head of the knife carriage near its center upon a bearing screw, h, and applying adjustable screws, f f, near its ends, for the purpose of making it adjustable at different hights, and either level or at different inclinations, substantially as set forth.

Second, I claim giving rotary motion to the mandrel, D, or its equivalent, which revolves the cork by means of a band, I, connected with the knife carriage, and carrying a weight, o, the weight serving to keep tight the bands, and transmit motion from the knife carriage to the cork during the cutting operation, and also to draw back the carriage after the cutting operation, substantially as described.

[Many efforts have been made to cut corks with machinery, but the material is of so peculiar a character that it has been difficult to give it that peculiar slanting and beveling cut so necessary to make smooth finished corks. The devices named in these claims embrace operating upon the material in the proper manner, while it is rotated, so as to cut the proper taper, any size of cork, and to make a perfectly smooth cut.

PADDLE WHEELS—John Upham Wallis, of Danville, N. Y.: I claim attaching the innermost or central portion of the buckets rigidly to a single wheel, or central rim, a, and staying the outer portions thereof to the said rim by stays, b b, substantially as described, whereby the construction of the wheel is simplified, and great strength is obtained.

[This improvement relates to V-shaped buckets, the vertex of which enter the water first.]

PLOWS—Nicholas Whitehall, of Attica, Ind.: Disclaiming all the devices separately considered, I claim the arrangement and connection of the handle, O O, arms, M M, plow-beams, C C, and seat, W, for the purpose of operating plows in the manner and for the purpose set forth.

COOLING AND DRYING FLOUR—George Butler Willison, of Elizabeth, Pa.: I claim the application of a draft of cold air over and around the upper millstone in grist mills, between the stone and the curb, to prevent sweating on the stones and curb, and to cool and dry the flour by means of the fan, b, in combination with the annular and tangential flanges inside the curb, to serve as a guide for the current of air, and the ventilating tube or tubes, in the manner and for the purposes set forth.

SEWING MACHINES—George W. Stedman, of Vienna, N. J.: I claim a bobbin, or its equivalent, upon, and combining it with a reciprocating plate or looper, which is provided with a pointed projection extending before said bobbin, and arranged so as to enter the loop of the needle thread, then carry the bobbin over the outside of, and finally back through said loop, substantially as described, whereby the liability to miss the stitch and break the needle, together with the noise and friction of a shuttle is avoided, the use of oil for lubricating the shuttle race dispensed with, and the consequent soiling of the thread prevented.

I also claim constructing the bobbin with one face sunk below, or flush with the edge of the other face, its thread, consequently unwinding from its face instead of its periphery, for the purpose of preventing the loop of the needle thread getting inside of the bobbin, substantially as set forth.

MARINE STEAM ENGINE GOVERNOR—Thomas Silver, of Philadelphia, Pa.: In the arrangement of my marine engine governor, I do not claim as a novelty the introduction of a spring, as that plan has been adopted for the purpose of collapsing or contracting centrifugal balls to the center of a horizontal plane, in governors operating in a vertical or fixed position.

I am also aware that a single bar with a centrifugal ball on either end and resting at the center has been proposed; that the pillar or shaft on which it rests may be placed horizontally, for the purpose of transmitting more readily the motion of the engine, the principle of its action being that of ordinary governors, and having no spring.

I claim, in governors, the employment of two oscillating balanced bars, in combination with the spindle and spring, or any equivalent substitute therefor in such combination, the whole being constructed and arranged as set forth.

DESIGNS.

COOKING STOVE—Russell Mann, of Troy, N. Y., assignor to G. W. Eddy, of Waterford, N. Y.

SPOONS—Henry Hebbard & John Polhamus, of New York City.

[We are happy to recognize such an activity as is manifested by the Patent Office at the present time. The amount of labor performed by the examining force of the Department, contrasts favorably with previous years at this season, and we hope the "*fire*" will be kept up throughout the summer months.

The specifications and drawings for no less than EIGHTEEN of the patents in the above list were prepared at this office. At the rate applic tions have been made for patents during the last six months, we are informed by ex-Commissioner Mason, the number of applicants for the year 1855 will exceed four thousand,—an increase which indicates a remarkable activity among our inventors.

Report of the Commissioner of Patents.

The following is the Annual Report, just published, of the Commissioner of Patents for 1855, to which we referred, in a short notice, in last week's issue:

U. S. PATENT OFFICE, Jan. 31, 1855.

[No. 1.]

Statement of moneys received at the Patent Office during the year 1854:

Received on applications for patents, re-issues, additional improvements, and extensions, and on caveats, disclaimers, and appeals	$134,125 00
Received for copies, and for recording assignments, . .	13,664 84
Amount reimbursed to patent fund, per act Aug. 4, 1854, .	16,000 00
	163,789 84

[No. 2.]

Statement of expenditures from the Patent Fund during the year 1854:—

Salaries, ...	$51,000 85
Additional compensation per act April 22, 1854, including six months in 1853: . . .	8,827 59
Temporary clerks, ...	32,750 86
Books for the library, . . .	3,772 28
Contingent expenses, . . .	32,339 78
Agricultural statistics and purchase of seeds, , . . .	2,838 00
Librarian, ...	700 00
Payments to judges in appeal cases, ...	475 00
Refunding money paid by mistake	302 00
Refunding money on withdrawals	34,139 96
Total amount, . .	167,146 32
Excess of expenditures over receipts during the year .	3,356 48
Excess of withdrawals this year over last	10,673 32

[No. 3.]

Statement of the Patent Fund:	
Amount to the credit of the patent fund, January 1, 1854 .	$28,950 00
Amount paid in during the year 1854, including $16,000 reimbursed by the act of August 4, 1854	163,789 84
	192,739 84
From which deduct amount of expenditures during the year:	167,146 32
Leaving in the treasury January 1, 1855, ...	25,593 52

[No. 4.]

Table exhibiting the business of the office for fourteen years, ending Dec. 31, 1854?

Years.	Applications filed.	Caveats filed.	Patents issued.	Cash received.	Cash expended.
1841.	847	312	495	$40,413 01	$23,065 87
1842,	761	291	517	36,595 68	31,241 48
1843,	819	315	531	35,315 81	30,776 96
1844,	1,045	389	502	42,509 26	36,344 73
1845,	1,246	452	502	51,076 14	39,395 65
1846,	1,272	448	419	50,264 16	46,158 71
1847,	1,531	533	572	63,111 19	41,878 35
1848,	1,628	607	660	67,576 69	58,905 84
1849,	1,955	595	1,076	80,752 78	77,716 44
1850,	2,193	602	995	86,927 05	80,100 95
1851,	2,258	760	869	95,738 61	86,916 93
1852,	2,639	996	1,020	112,056 34	95,916 91
1853,	2,673	901	958	121,527 45	132,869 83
1854,	3,324	868	1,902	163,789 84	167,146 32

From this last statement, it appears that 3,324 patents have been applied for within the past year, which is an increase of 651 over the applications of the previous year.

The number of patents issued in 1854 is nearly twice as great as in 1853.

The number of cases in the office awaiting examination on the first day of January, 1854, was stated, in the report of last year, to have been 582. Owing to an imperfect mode of computation, this number was found to be incorrect. An actual count showed that there were really 823 cases on hand and undisposed of at the commencement of the past year. That number is now reduced to 89, so that the work of the office can hardly be regarded as being at all behind hand. Applications are now acted upon within a very few days after being made.

The receipts of money from all sources, during the past year, amount to $163,789 84, and the whole expenditure has been $167,146 32. This exceeds the receipts by $3,356 48. Among the receipts is included the sum of $16,000, refunded to the Patent Office for expences incurred, partly in 1853 and partly in 1854, for fitting up the rooms of the new building, and for other similar purposes, so that the revenue arising from fees alone during the year 1854 has been only $147,789 84. This falls short of the actual expenditure by $19,356 48.

This excess of expenditure has resulted, partly, from the additional compensation allowed by the act of 22nd of April, 1854, to clerks and other persons employed in the office; in accordance with which, the sum of $8,827 59 has been paid during the past year, as appears from the foregoing statement No. 2.

The expenditures have also been very much augmented during the year by the necessity of repairing a large number of the models in the office, and also of cleaning, varnishing, and removing them to their new receptacles.

The crowded condition in which it has heretofore been necessary to place them had resulted in numerous and great injuries, which it was incumbent on the office to repair. They will be, in a great degree, exempt from such injuries in future.

But the largest item of extraordinary expenditure has resulted from the augmentation of force necessary to dispose of the accumulation of arrearages before mentioned.

The number of cases now on hand is less, by 734, than that which existed a year previous.

The fees of these 734 cases (amounting to more than $20,000) were received in 1853; the labor has been performed, and the expense incurred, in 1854.

The entire income which has resulted from all the cases disposed of during the past year, has been greater than the whole expenditure of that year.

It is, therefore, possible that the receipts for the coming year may be nearly, or quite equal to the expenditure, if rigidly confided to those things which are indispensably necessary. There are, however, some matters which, though not altogether indispensable, seem to commend themselves strongly to the favorable consideration of Congress, and which will call for some increase of expenditure in future. Among these may be reckoned, in the first instance, an increase of salary to some of the examiners. In the report for last year it was stated that the examining force had been augmented by placing an additional clerk in each of the examining rooms, as a second assistant examiner. The despatch of business in the office was much facilitated by this arrangement, which was, however, found inadequate to the rapid increase in the number of applications. It was therefore thought expedient to place several of the assistant examiners in charge of duties which had previously been intrusted only to the principal examiners.

Accordingly, on the first of April last, five of the assistant examiners were each intrusted with the charge of an independent examining desk; so that for nine months of the past year there have been eleven separate and independent examining rooms, with each an acting principal and assisting examiner. These assistant examiners who have thus been performing the duties of principals, and the clerks of the second class who have been acting as assistant examiners, seem to have just claims to be placed on a footing of equality, as to compensation, with others who are performing the same duties, and are subject to the same responsibilities. The necessary examination cannot be made with proper promptness with a less force than ten principal and as many assistant examiners; and should the business of the office continue increasing, as it now promises, before the end of the present year we shall need twelve of each class of examiners. The number should, therefore, I think, be increased to that extent at once, or power given to the Commissioner so to increase it as soon as occasion requires.

The business of the Patent Office progresses or lingers, in precise proportion to the efficiency of the examining corps. The increased expense of supplying a few additional examiners is trifling, in comparison with the advantage of having the business of examination despatched in a few days after the application is made, instead of obliging the applicant to wait as many months for that purpose.

The report for the year 1853 was illustrated with wood engravings, which, though somewhat imperfect, are believed to have added much to the value of that report, by rendering it vastly more intelligible than it could otherwise have been made. Steps have more recently been taken to improve still further in this particular, by providing copper-plate engravings for this purpose. A conditional contract has been made with a competent artist, which, if approved by Congress, will render the report for the year 1854 highly creditable to the office, and eminently useful to the public. I feel great confidence that the advantages resulting from these illustrations will fully justify the increased expenditure thereby rendered necessary.

The present rate of fees has been in existence for more than sixty years with but little variation. During that time the intrinsic value of money has been very essentially diminished. The labor and expense thrown upon the office has been more than doubled by the change which took place in 1836; and the additional compensation more recently provided for clerks and other persons employed in the office has still further contributed to swell the ratio of expenditure to that of revenue, and to call for a new tariff of fees, in order to prevent the necessity of curtailing the expenses of the office in a way which cannot but be prejudicial to the best interests of those by whom those fees will be paid.

It is believed that the inventors themselves would prefer a sufficient augmentation of the rate of fees, to enable the business of the office to be promptly and successfully conducted, rather than to save a few dollars at the expense of great vexation and delay in obtaining official action upon their applications for patents.

In my last annual report, the attention of Congress was invited to the consideration of the propriety of abolishing all discrimination in the rate of fees as between citizens and aliens; subsequent reflection has only confirmed the opinion then entertained and expressed on that subject. Some of the beneficial results of the liberal policy then recommended in enducing a like liberality on the parts of other nations, are already sufficiently obvious.

At the present time, the laws of Canada do not permit our citizens to obtain patents in that province under any circumstances, which causes great inconvenience and loss to our inventors. All machines invented here, can be made and used in Canada without any license from the American patentees, and the products of those machines can, with little trouble or expense, be brought into our markets to compete with like commodities manufactured here by persons who are obliged to pay for the right to use the patented machine for that purpose. This operates like a discriminating tariff against the home manufacturer, which cannot but be prejudicial to his interests.

Reliable information of a private character has, however, been received, to the effect that the Canadian Parliament is taking steps to remove this cause of complaint. A bill was introduced into that body at a recent Session (which has been adjourned over to some time in the present month,) and is still pending, which contemplates allowing American inventors to obtain patents in Canada; and the only cause of doubt as to its becoming a law is believed to grow out of the enormous fee demanded by this office from all Canadian inventors. The proposed modification in our rate of fees, would doubtless be followed by the desired change in the Canadian law. This would remedy the difficulty complained of by our inventors above alluded to, so far as future patentees are concerned, and might perhaps do so in relation to patentees of a previous date.

It may be thought that we shall best attain our object by retaliatory measures.—Such a course would be calculated to arouse angry and hostile feelings, rather than to lead to any final advantage to either party.

A course dictated by kindness and liberality, will soon dissolve the barriers which makes nations strangers and enemies.

We can well afford to lead the way in a course of measures which will contribute no inconsiderable share towards rendering us and our Canadian neighbors practically one people.

I take the liberty of inviting the attention of Congress to the other matters treated of in my report for 1853, to which I have nothing to add at present.

Very respectfully, yours, &c.,

CHARLES MASON, Commissioner.

To Make Beautiful Hair Oil.

Take one quart of olive oil, or fine lard oil, 2½ ounces of spirits of wine, 1 ounce of cinnamon powder, 5 drachms of bergamot. Heat them together in a large pipkin, then remove it from the fire, and add four small pieces of alkanet root; keep it closely covered for six hours, let it then be filtered through a funnel lined with blotting or filtering paper.

Quick Made Blacking for Shoes.

Beat up two eggs, add a teaspoonful of alcohol, a lump of sugar, and ivory black to thicken; it should be laid on and polished like leather blacking, and left a day to harden before it is used.

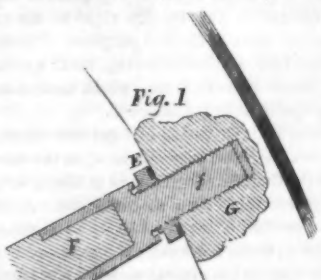
The census marshals report the population of this city (New York) at about 750,000.

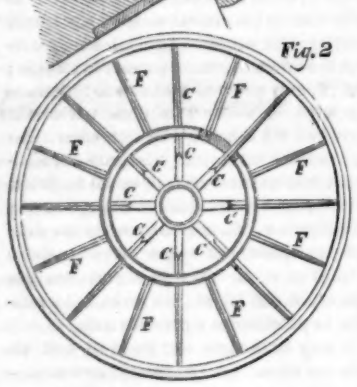
New Inventions.

Improved Carriage Wheel.

The annexed figures represent an improvement in carriage wheels for which a patent was granted to John Skelly, of Brooklyn, L. I., on the 30th of last January. The improvement consists in the peculiar construction of the wheel, whereby light or small hubs may be used, and a more durable and stronger wheel made than the ones now in common use.

Fig. 1 is an enlarged section view of a spoke inserted in the felly, at the end of which is shown a portion of the tire. Fig. 2 is a front view of the wheel. G, fig. 1, is the felly of the wheel, *f* is a screw on the end of spoke F, and is shown in its place in the felly. C, fig. 2, are spokes, one end of which are secured in mortises in the hub, and the opposite ends are secured in the inner side of the rim in the usual manner There is a ring or band which is formed of wooden segments placed between the spokes. C, at any proper point between the hub and rim, or the ring or band may be made of an entire piece of wood, with holes bored through it to allow the spokes, C, to pass through. At each side of the ring or band there is screwed a circular metallic plate or band, E, fig. 2, of sufficient thickness to give the ring or band



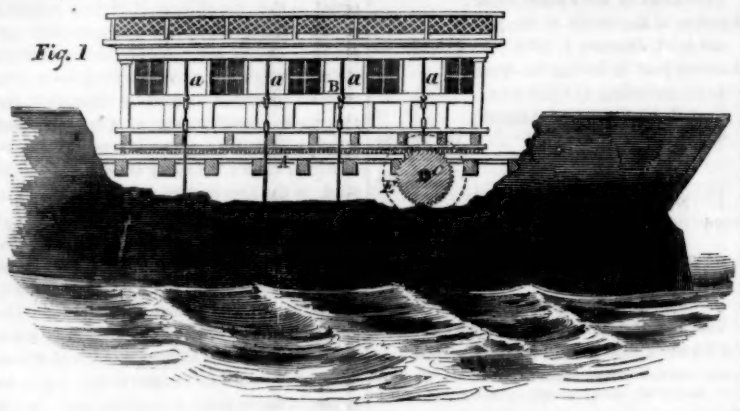


the requisite strength. F are short spokes, one end of which are secured in the outer edge of the ring or band, and the opposite ends are secured in the inner side of the rim, the long and short spokes being placed alternately in the wheel. There are from sixteen to eighteen spokes in ordinary carriage and light wagon wheels, and this number is essential, and steamed or boiled fellies are used, and if the fellies were not supported by a requisite number of spokes, the fellies would flatten, or become depressed between the spokes, and this now generally occurs in common wheels when subjected to some wear.

It is customary to use small hubs in the construction of carriage wheels; they are considered ornamental, and add much to the light appearance of the wheel. Large hubs would render a vehicle unsaleable. It will be seen that a small hub with mortises made in it to receive sixteen or eighteen spokes, will be much cut up or weakened, besides there cannot be much of a shoulder allowed for the spokes, as they are close together near the hub. By this improvement the hub has only half the usual number of mortises cut in it, and the long spokes, C, may have requisite shoulders at their ends adjoining the hub, so that they may be well supported in the hub, and prevented from working or becoming loose therein. At the same time the fellies composing the rim are well supported, as the usual number of spokes are inserted in them, the ring or band allowing the requisite support to be given the fellies by means of the short spokes, and also diminishing the number of mortises usually made in the hub. Thus a strong and durable wheel is obtained, the spokes are well supported by a ring or band, and prevented from twisting or bending when the tire is shrunk on the rim. Small hubs may be used and the cost of manufacture will not exceed that of the ordinary wheels.

More information may be obtained by letter addressed to J. B. Oliver, 66 Schemerhorn street, Brooklyn, L. I.

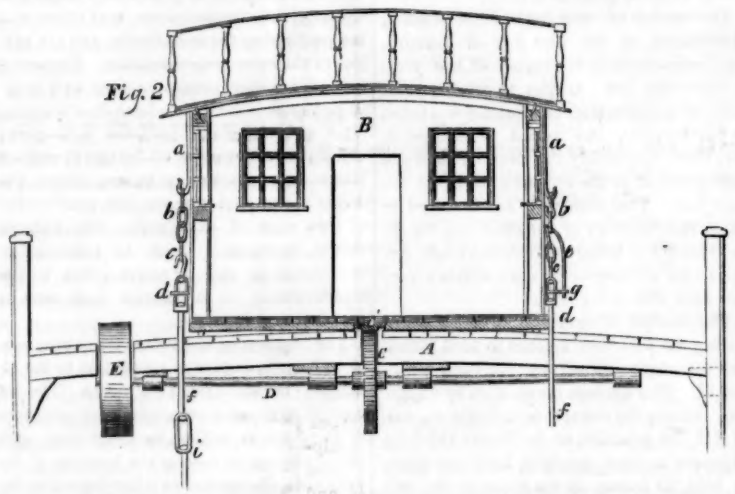
DECK AND SALOON CABINS OF STEAMBOATS.



The annexed engravings are views of an improvement in the construction of safety deck and saloon cabins for steamboats and other vessels, for which a patent was granted to Wm. R. Jackson, of the city of Baltimore, Md., on the 5th of last month (June, 1855). Figure 1 is a side elevation of a vessel with a safety cabin on it, and fig. 2 is a cross section, showing in detail the mode of securing the cabin in the vessel, and the mode by which it may be removed.

The nature of the invention consists in the construction of deck or saloon cabins of steam or other vessels in such a substantial manner, by securing and uniting the several parts thereof, v'z., the floor, the sides and roof, to each other, as to render it capable of resisting the violence of the shock of launching when necessary, and the force of the wind and waves when launched, and to subserve the purpose of a safety and escape vessel or life boat, in the event of accident from foundering or fire occurring, while at the same time its usefulness as an ordinary cabin of the vessel, is not in the least affected.

The cabin or saloon may be of any desired form or dimension, keeping in view, however, its capacity of accommodating the crew and passengers in case of emergency. The floor of the cabin is formed entirely distinct from



the ordinary deck of the hull, and is composed of strong timbers extending from side to side, and strengthened properly with cross framing. This cabin floor is not only planked on its upper, but on the lower side of the timbers, so as to increase its strength and buoyancy. The sides or walls, B, of the cabin are likewise formed of strong timbers raised upon and united with the timbers and framing of the floor, being secured thereto by suitable angle irons, or other device, so as to render the separation of the sides exceedingly difficult. The roof is likewise formed of timbers similarly united to the sides, and the planking of the roof and sides is applied to the inside as well as outside. Any desired number of windows or doors may be introduced, as in ordinary cabins. This cabin or saloon is made entirely distinct from the hull of the vessel, and may be secured thereto by any suitable device, such as metal rods, *f f*, passing through the deck timbers (admitting of being driven below the level of said timbers). Said rods are provided with swivel hooks, *d d*, for tightening the straps, *a a*, by chains *b* and *c*, when made continuous by the trigger, *e*, and slip ring, *g*.

A rack is placed on the under side of the saloon, and a spur wheel, C, projecting through the deck above the beam, A, takes into it. This wheel is secured in the shaft, D, which receives motion by a band around pulley E, and thus, when the links are unhitched, the cabin can be launched or moved back and forth, like the feed bed of a saw mill. A ship having this separate cabin, if damaged in the hull, and in a sinking condition, has but to have triggers, *e*, slipped from the links, and the cabin would float when the hull sunk under it. Each cabin of this kind is thus a large life boat.

More information may be obtained by letter addressed to the patentee, at Baltimore.

American and Scotch Pig Iron.

The Buffalo *Democracy*, in discoursing on the above subject, says:

"There is a very general belief on the part of our country iron founders, that Scotch pig is superior to American. This error arose in this way: as long ago as 1830, Bent, of Albany, became widely known as the manufacturer of the best, smoothest, and lightest hol low ware—using for the purpose Scotch pig, which was then made by hot blast. Neilson, the inventor of the hot blast was a Scotchman, and introduced his improvement first in Scotland.

The well-known effect of the hot blast is to soften the metal, (if not weaken it,) and as Bent's ware, being thin, required a free running iron, it was found that the Scotch raw-coal pig had the property of liquidity, in a greater degree than in coke or charcoal pig.

The success of Bent's hollow ware manufacture, established in this country a fictitious character for Scotch pig iron. And it has cost us millions and millions of dollars. Scotch pig, weaker and softer than English or American, has been lavishly used for mill-gearing, steamboat work, machinery and engines, throughout our country. It has been particularly used in this non-producing iron State of New York.

The sooner our foundrymen and machinists learn the fact that anthracite coal produces better iron than bituminous coal, and that our hematite and primitive ores yield a stronger iron than carbonates (especially the Black Band,) the better it will be for their customers.]

[The *Democracy* should inform itself more fully on such subjects before it discusses them. Here we are told that Scotch pig iron is simply a metal which flows smoothly because it is made with the hot blast, but inferior in strength to American iron made with the use of anthracite coal. It does not seem to know that the hot blast is used both in our own country and in England, in the smelting of iron ores with anthracite coal. None of our foundrymen or engineers require to be told that Scotch pig iron is a weak metal in comparison with the American cast-iron—they all know it. It is famous only on account of its quality—correctly given by the *Democracy*—of easy flow, for the making of smooth castings. For this reason it has no equal for making hollow cast-iron ware and smooth stove plate, and fine skinned castings, but the ore from which it is made—the Black Band, discovered by Mushet—and not the hot-blast, gives it those peculiar qualities. We understand that Black Band iron ore is found in abundance in some parts of the Ohio coal basin; if so, as good pig iron for smooth castings can be made from it as in Scotland, and we hope this will soon be successfully and extensively accomplished. The hot-blast is employed in reducing the Black Band iron ore, as it is very refractory, and requires a high degree of heat.

Is the Center of the Earth a Mass of Fire.

The Philadelphia *Ledger* copied our artion the above subject, from page 296, SCIENTIFIC AMERICAN, and since it has done so, two letters from correspondents, commenting on it, have appeared in our cotemporary, one of which agreed with our views, while the other, in the *Ledger* of the 2nd inst., advocates the central fire theory. Who the author is we do not know, but he merely repeats the old views on the subject, and does not attempt to answer the objections and arguments against them which we have presented. He puts forth the view, that because the earth is flattened at the poles, this is evidence of it having once been in an entire fluid state. This may be, but certainly it is no argument for the earth having been—or is now in the interior—a fiery liquid. He also states that he has made a calculation of the weight of the earth, and what its gravity ought to be if fluid, and subject to the compression of attraction from the surface to the center, according to its mass, and he has found it to be equal to about five times that of water—just what experiment found it to be. This is two and a half times greater than our heaviest known rocks. He thus furnishes a strong argument against himself, for how, in the name of all that we know about the laws of mechanics, could any hot molten mass—or fluid—be compressed to a density greater than that of iron, and yet be retained in a fluid state? If it ever had been a fluid, such a pressure must have reduced it to a solid of greater gravity than our heaviest known rocks.

The theory taught by so many men, that we are living on a mass of fluid fire 7000 miles in diameter, and are separated from it only by a thin crust of sixty miles in depth, requires more faith to embrace than we possess at present. There are many persons who will strain out knats and swallow camels, in scientific matters as well as morals, and this central heat theory is one of those camels.

Excavations are going on at each end of the Hoosac tunnel, at the rate of eight feet per day.

Scientific American.

NEW YORK, JULY 14, 1855.

Resignation of the U. S. Commissioner of Patents.

It is with unfeigned regret that we are obliged to confirm the brief announcement made last week of the resignation of the Hon. Chas. Mason as Commissioner of Patents. He vacated the office on the 5th inst., his chief clerk, Mr. S. T. Shugert, receiving the seals, and taking charge of the department ad interim.

Although there have been at times some differences of opinion between ourselves and the late Commissioner, on subjects connected with the patent laws, still we have ever acknowledged and commended the consummate wisdom, the untiring energy, and the unswerving honesty which have always characterised his administration. When he first took office the Department was in a most deplorable condition. Years of ignorant and imbecile management, occasioned by the appointment of officers wholly unfit for their stations, not only in the executive but in other branches of the establishment, had heaped up a mass of rubbish in the shape of abuses, errors, absurd rules, complaints, unfinished business, and the like, that had nearly crushed out the vitality of our patent system.

Mr Mason came into power in May, 1853. At that time the affairs of the Patent Office were in such a lax and disgraceful state that it took from six months to a year to get a patent through, and as much longer to obtain a hearing on an appeal. With an energy wholly unknown to his predecessors, he set about the work of renovation and reform, determined, if it was in the power of man, to restore the Department to respectability and usefulness. Before the year closed he had so far completed his herculean task that inventors were enabled to receive their patents within a less number of weeks, after filing their applications, than they had previously waited months and before the close of his administration, patents were often ordered to issue within six days after the application was placed on file. We need hardly say that under his admirable direction every other branch of the service was brought up to the same standard of promptness and efficiency, and the whole department, re-invigorated and organized, was made to move on with regularity, harmony, and precision. We quite agree with the correspondent of the New York *Tribune*, when, in speaking of Judge Mason, he says:

"He was undoubtedly the best, the ablest, and the most successful man that ever stood at the head of this highly important department, and probably the most efficient officer the present government has had to boast of. An iron adherence to strict impartiality, a clear insight into the principles of mechanics, a keen perception in legal matters, and a noble devotion to the inventive interest of the country, are the great qualities which marked his business career, and which, whoever his successor may be, will hardly be surpassed."

In retiring from a post which he has filled with such marked ability, and with so much benefit to the interests of the country at large, he will carry with him the profound gratitude of all inventors, and of all classes of people who had business to transact at the Office with which he was connected. The services he has rendered are most noble, and their influence will long be felt.

It has been our pride to think that amid these days of official corruption and mismanagement, there was one branch of the public service in which true honesty and fidelity to principle, reigned supreme. That branch was the Patent Department, administered by Charles Mason. We are not politicians, and we pretend to no keen-eyed prescience, but we believe that the day is not far distant, if his life is spared, when he will stand forth from the lesser ranks, the honored and honest Chief Magistrate of this Republic. He possesses all the qualities for this exalted position, and sooner or later, we doubt, not they will become developed.

Next to the regret which we experience in the resignation of Judge Mason, is a feeling of dissatisfaction that he should have abandoned his post without having first provided or introduced a competent successor. Probably, however, he considered this a delicate matter, about which the least said by him the better. Without having cast about much, we can suggest three names that would perhaps be as acceptable to inventors as any others, under the unfortunate circumstances. We allude to Chief Clerk Shugert, Professor Baldwin, now an Examiner in the Patent Office, and to ex-Examiner W. P. N. Fitzgerald, formerly connected with the Department. All of these gentlemen are men of probity, energy, and experience in Patent Office matters, and we doubt not that either of them would give good satisfaction. When Mr. Fitzgerald was connected with the Office he was accused of exhibiting considerable personal animosity, at times, towards those who either did not like his decisions, as Examiner, or whom he did not happen to fancy. Mr. F. is, notwithstanding, a man of great talents, and would bring to the Commissionership a ripe experience. The accusations alluded to were no doubt overstrained and magnified.

The present excellent condition of the Patent Office requires that a new Commissioner should be appointed with as little delay as possible, in order that business may not become accumulated and affairs confused. We trust, however, that the President will not exercise so great haste as to make an ill-advised appointment. The matter is one of grave importance to the country, while the honor of the present administration will be affected according as the selection is good or bad.

In the meantime Mr. Shugert, the Chief Clerk, is a faithful and an excellent officer, who will discharge the important functions committed to his care with credit and success, until relieved by the Executive or regularly appointed as Commissioner.

If the Patent Laws are to be amended next winter, we trust that among the other changes the Commissioner's salary will be raised. The compensation of $3000 now paid is an insufficient reward for a man of ability, at a post so responsible.

New York Docks.

The captains and owners of vessels generally assert that the docks of our city are a disgrace to it. Considering that New York owes its wealth and importance to its shipping interests, everything relating to those interests should be vigilantly supervised, and no ignorant narrow-minded policy should rule the councils for improving our docks and harbor. But because the harbor naturally is an excellent one, it would seem as if our city authorities had acted upon the principle of warring against its natural advantages, instead of increasing and improving them. No improvement, we conceive, is more urgently required, or would do more good, than to build solid and enduring docks, and erect covered cast iron sheds on them for the protection of cargoes during the loading and unloading of vessels. It often happens that a severe thunder storm, with heavy rain, suddenly comes up, when our docks are covered with bales of merchandize, thus causing much loss. We have no doubt but that goods are injured every year to the amount of at least two millions of dollars, by exposure to the weather on our docks. All this could be avoided by having good dock sheds made of cast iron, portable and fire-proof. Some large companies, like the Collins Steamship Co., having exclusive docks to themselves, have erected sheds for the protection of goods, and with a saving, we have no doubt, of ten times the value of the sheds every year.

Our docks are wretched affairs, considering the wealth of New York and the vastness of its trade. They are simply log cradles filled with stones, and are of a frail character at that. A few months since one of them sunk down into the river, because a somewhat large cargo of pig iron was deposited upon it; whereas, it should have been strong enough to have sustained the weight of all the vessels, with cargoes, which could be got along side of it. It is a great mistake to suppose that frail docks, because they can be cheaply erected, are the most economical. They require to be renewed so often, and need so many repairs, that they are far more expensive in the end than more solid and enduring structures. The city of New York cannot spend too much (if expended judiciously) in improving its docks and harbor. We hope, at least, that the improvement suggested, regarding the cast-iron dock sheds, will meet with that attention which we think it deserves.

Damage to Cargoes Sweating Ships.

In the San Francisco *Herald* of May 12th, we find the decision of Judge Hoffman given in a case where action was brought to recover damages by Adrian & Story, against the owners of the clipper ship *Live Yankee*, for goods carried in that vessel, and which were found saturated with moisture, and much damaged. The Judge appears to have had a very obscure idea respecting the cause of the damage done to the goods, which is known by the name of "sweating;" and it would appear that the witnesses in the case gave some curious testimony. The following is part of the Judge's charge:—"On the whole, I consider that under the evidence in this case, it does not appear that the damage has occurred from causes originating in the agency of man, nor that it could, like damage by rats, injuries by worms, &c., have arisen from causes, the effect of which the Court cannot affirm that the carrier could, or ought to have guarded against; that it is not to be likened to the case of some known and internal defect in the particular conveyance, for which the carrier is liable, but it is a risk to which every shipper knows there are no ascertained and established means of preventing, and that in shipping in this vessel, he assumed the risk of her system of ventilation, and that, inasmuch as he knew the dangers to which his goods were exposed, he assumed the risk of damage."

This is an exceedingly important question to the shippers of goods to California, inasmuch as the decision absolved the liability of the vessel for damages, although those goods were damaged while in the vessel. The reasons given for such a decision do not display a deep probing of the subject by the Judge. It seems that a great deal of goods shipped in New York, when they arrive in San Francisco, are found to be damaged by this sweating of the ship between decks; and what confused both Judge and others was evidence to the effect that some ships (as was the case with the *Live Yankee*) which are ventilated, have their cargoes damaged, while others not so ventilated have carried cargoes as safe and sound as when first stowed away. That a remedy will be found we have no doubt, but not before the cause of the evil is ascertained; and this, we are of opinion, has already been pointed out by one of *our* California correspondents, in a letter on the above decision, addressed to the San Francisco *Herald*. He says:—"It is evident that the primary cause of sweat, as it is inappropriately called, is nothing more nor less than the steam arising from the hold of the vessel, generated by the heat of the tropical climate; that it collects or ascends to the highest point, to wit: immediately under the upper deck, where it increases in density, by reason of the hot sun beating down upon a single planked deck; and when at such a period a heavy shower of cold rain, or accompanied by hail or sleet, such as frequently occur in tropical latitudes, the steam, in contact with and immediately under the upper deck, would be suddenly condensed, and form in drops of water upon the under side, and thence falling upon the cargo, damage it."

The washing of the decks, he also states, will condense such steam on the under side; and the side sweating of vessels he attributes to them passing through warm and cold currents of the ocean. Ships not ventilated, but having good thick deck planking, he states, may not be affected with sweat, because such planking is a good non-conductor. The remedy which he suggests is a double deck for warding off the heat of the sun, and preventing sudden condensation by washing the decks, or by rains; also boring holes transversely in the deck beam, to allow a free circulation of air. The double deck is a good suggestion, and ventilation should never be neglected. We are also of opinion that it would be an improvement on board of ships to have less slashing of water on the decks, and more dry scraping, especially in the tropics. This plan was pursued in the late Niger Expedition, under McGregor Laird, and with marked benefits, both as it related to the health and comfort of the crew. These suggestions are at least well worthy the attention of shipowners and forwarding merchants.

Coal Burning Locomotives.

How are our northern railroads getting on with experiments for the use of coal as a substitute for wood as fuel on locomotives? We have been informed that coal would actually save one half the expense for fuel, if used in place of wood; its economical use for that purpose, then, is self-evident. That it can, will, and must be used yet, for such fuel, we have no doubt whatever; and it appears to us that the sooner it comes into such use the better, both for railroads and the public.

We have seen a statement to the effect that in one year no less than one hundred and forty cords of wood are burned on every mile of railroad using wood for fuel; and that on the New York and Erie Railroad alone, 65,000 cords are annually consumed, each cord costing as much as a tun of coal. What a saving would be effected on that road, if coal was substituted for wood! But to this it must come soon, as it is not possible for the supplies of wood to continue many years longer.

If coke could be economically substituted for wood—and we do not see why it may not—it would remove one of the greatest nuisances of railroad traveling,—we mean sparks and smoke. In spite of the many improvements which have been made in spark arresters, it is a positive fact that on all our railroads, ventilating cars to the contrary notwithstanding, the spark and smoke nuisances are still strong and fœtid. That many of our railroads have not exhibited more zeal in endeavoring to abate such evils, says but little for their desire and attention to increase the comforts of railroad traveling. If steamboat traveling, or even the old up-and-down stage system, were as fast as that of the railroad, not a soul would patronize the latter. Those who travel on our railroads make up their minds before they start to endure a sort of purgatory, for the sake of soon arriving at the end of their journey. We are of the opinion that our railroads can be so reformed as to render traveling on them as pleasant and comfortable as by any other mode of conveyance, and the substitution of anthracite coal or coke for fuel on the engines would be a great advance in the path of improvement.

Ex-Commissioner Mason.

We had the pleasure of an interview with Judge Mason, last week, in this city. He was *en route* for his home in the far West—Iowa. His health appeared to be good, notwithstanding his past arduous labors.

A rumor was published in the papers, at the time of his resignation, that he would probably return to his post again next fall, when Congress meets. We wish there was some truth in the rumor, or that there was any ground for so desirable a hope—but we believe there is not.

Malignant Postule.

C. Watson, in a letter to the *Tribune*, states that he was attacked with malignant postule, and soon cured himself by the application of leeches first, then bathing it by a sponge with hot water, to keep it bleeding for some time, after which he applied a flax seed poultice. This method of treatment appears to be very rational, and it may be of use to some of our readers.

Foreign Editorial Correspondence.—No. 6.

Paris Exhibition, &c.

HEIDELBERG, June 9, 1855.

MESSRS. EDITORS—On the 5th, I took an early train for Strasburg. At twilight, a sight of the tall spire of the Cathedral notified me of my arrival in that old city. For many miles west of Paris there is nothing in the country or in its scenery that can afford much pleasure. It is flat and fenceless, exhibiting good cultivation; and, as in Northern France, the women are commonly in the field, doing service never intended for them. I was sorry to see this degradation of the gentle sex; but man is naturally arbitrary, and without refined culture, his despotic passion rules to inflict injustice and oppression.

In the neighborhood of Epernay, about 100 miles from Paris, are extensive vineyards, from whose bountiful lap excellent champagne is produced.

The vine does not grow much higher than four feet, if I may judge from the length of the poles or sticks upon which they run; and as I had a different idea on this point, my first sight of a vineyard fell much behind expectation. They are interesting more for their extent than for any natural beauty attached to them. Espying a large handsome residence upon an elevated plateau near Epernay, I felt anxious to know something of it. It may at first seem singular that a matter of such apparently trifling importance should excite interest; but the sequel is opened, and wonder ceases when I inform you that a pretty house, such as are so common in the United States, is rarely seen in France outside of the larger cities and towns. The dwellings of the peasantry are rude and uncouth, and have not the charm that usually clusters about the farmhouses in our country.

The building referred to above was represented to be the residence of Madame Cliquot—a name celebrated in the champagne trade. The reputation of this brand of wine was established by a singular event, and illustrates with much force the old proverb, that "it is an ill wind that blows nobody good." In the campaign of 1814, between France and the allies, their mansion was taken possession of by the Russians, and became a barrack for officers and soldiers.

Its vaults were well stored with champagne, and, as would be supposed, the Russians were not long in taking the scent of this delicacy. They remained inhabitants of Epernay long enough to test the quality of Cliquot's champagne, and were kind enough to speak well of it to their friends. From that time onward, Cliquot's reputation has been above par, and a great fortune has resulted to the family from this circumstance.

The unchanging character of the scenery for some three hundred miles west of Paris, is all at once broken by a range of mountains, called the Vosges; and after passing through several tunnels, and across delightful ravines, entrance is had to the Rhenish valley. The aspect of the country not only changes, but a change is also visible in the appearance of the towns, and in the physical characteristics and language of the people. Everything looks and acts like German. This seemed singular to me at first, but I thought of the varying dialects of the English, Scotch and Irish, and concluded that it was no great affair after all, to find a difference in French character on each of a range of small mountains.

Strasburg stands on the very western frontier of France, and is an interesting place, in some respects, to a stranger. The immense cathedral is a wonder in its way, and has a greater altitude than any other structure in the world, except the great pyramid of Egypt. Its spire is 464 feet high. The first stone of this immense structure was laid in the year 510: and after a space of about five centuries it reached to nearly its present condition. No figures remain that indicate its cost, but I was informed that at the period of its construction the laborers were paid only three farthings per day.

Taking leave of Strasburg, its solemn cathedral, venerated storks, and steep, dingy-roofed houses, and crossing the Rhine by a bridge of boats, I found myself for the first time in Germany—a land fragrant of strange legends and thrilling historic association—to say nothing of its sour krout and lager bier. The first town to the north that possesses much interest is Baden, a lovely and romantic place, quietly reposing amidst a graceful group of little mountains.

The scenery in and around Baden is picturesque and beautiful, but not sublime. The view from the tower of Mount Mercury is very fine, and well paid me for the labor I had in climbing its steep paths, on a hot day.

Baden has hot water springs, and is a place of fashionable folly. Gambling is one of its principal staples, and the weasel-eyed managers of the "roulette" are coining money out of their dupes, and are able to pay more than one hundred thousand dollars every year for this privilege. It is conducted in one of the most frequented halls of the town, and men and women are spectators to the villany with as much indifference as they would attend an auction sale. I understand that the women never engage in the play, but thousands of young men open the port to premature ruin by visiting Baden. It is licensed by government, and thus receives a varnish of decency that does not belong to it.

Some four hours' ride from Baden is Heidelberg, the most famous place in Germany. Here is also a most magnificent ruin—"Heidelberg Castle." The place is also the seat of the first university in Europe, and hundreds of students from all countries come here to pursue their studies.

The scenery about Heidelberg is charming, and with the old castle, and its interesting collection of antiquities, it has become a centre of deep interest to the tourist, and is richly worth a visit from every American who crosses the Atlantic.

Of the city itself, little can be said in its favor, as the streets are narrow, and the buildings far from elegant in design or construction.

The admirable location of Heidelberg, and its rich historic associations, however, relieve the dull and sleepy appearance it presents, as the visiter has his attention drawn away from it to objects of deeper interest.

I visited the University Library, and was pleased to examine its ancient and valuable manuscripts, and particularly the volume of Thucydides' History, Martin Luther's translation of Isaiah, a sermon by Luther, also copies of the New Testament, and the Psalms richly illuminated. The perfection of chirographic art in those ancient days can only be understood by examination of the work of the ancient scribes. No art can be more beautiful, or more difficult to execute, than these old parchment copies of the sacred Scriptures.

In the morning, at four o'clock, I made what I hope will be my final attempt at donkey riding, by an ascent of Konigstuhl.

From the top of the octagon tower of this mountain is obtained an enchanting picture. With the aid of the glass, the tower of the Strasburg Cathedral can be seen a distance of ninety miles. The broad basin of the Rhine, the picturesque valley of the Neckar, and the surrounding mountains, opens to the vision a grand and pleasing panorama of natural beauty, such as I never saw before. I regret that my time is limited at this place, as I could pass a week in roaming among the highlands with pleasure and profit, but must away to Mayence, where I shall take the steamboat to Cologne. S. H. W.

Measuring Distances by Sound.

Sound passes through the air with a moderate and known velocity; light passes almost instantaneously. If, then, two distant points be visible from each other, and a gun be fired at night from one of them, an observer at the other, noting by a stop watch the time at which the flash is seen, and then at which the report is heard, can tell by the number of intervening seconds how far apart the points are, knowing how far sound travels in a second. Sound moves about 1090 feet per second in dry air, with the temperature at the freezing point, 32 deg. Fahrenheit. For higher or lower temperatures, add or subtract 1 1-7 foot for each degree of Fahrenheit. If a wind blows with or against the movement of the sound, its velocity must be added or subtracted. If it blows obliquely, the correction will evidently equal its velocity multiplied by the cosine of the angle which the direction of the wind makes with the direction of the sound. A gentle pleasant wind has a velocity of 10 feet per second; a brisk gale, 20 feet per second; a very brisk gale, 30 feet; a high wind, 50 feet; a very high wind, 70 feet; a storm or tempest, 80 feet; a great storm, 100 feet; a hurricane, 120 feet; and a violent hurricane, that roots up trees, &c., 150 feet per second. If the gun be fired at each end of the base in turn, and the means of the times taken, the effect of the wind will be eliminated.

If a watch be not at hand, suspend a pebble to a string, (such as a thread drawn from a handkerchief,) and count its vibrations. If it be 39⅛ inches long, it will vibrate in one second; if 9 inches long, in half a second, &c. If its length is unknown at the time, still count its vibrations; measure it subsequently, and then will the time of its vibration, in seconds, equal the square root of the string divided by 39⅛.—*Prof. Gillespie.*

Scientific Notes and Queries.

INCREASING THE SIZE OF FLOWERS—A horticulturist of the suburbs of Versailles, in studying the physiology of the vegetable kingdom, conceived the idea that the smallness of certain plants—the violet for example—was owing to an atmospheric pressure too great for their delicate organs. Having fixed this idea in his mind, the florist conceived the notion of putting his idea into practice. Providing himself with a small balloon, rendered sufficiently tight to prevent the escape of any gas, he launched it into the air, having attached to it a silken cord twelve hundred meters long. Instead of a car, the balloon sustained a flower-pot of Parma violets. This experiment has been going on about two months with the most wonderful results, in the shape of violets as large as Bengal roses. It is expected that the above experiment may be turned to some account.

[The above is from an exchange, and has an exceedingly suspicious appearance.

NEW BRITISH CURRENCY.—In the British House of Commons, a resolution has been adopted to issue silver coins representing the one-hundreth part of a pound, and copper coins the one-thousandth part.

AMERICAN BROADCLOTH—Our broadcloth has now gained for itself a character too solid to be easily injured. Its introduction, however, was a work of no small difficulty, because it had to contend against a very foolish prejudice, that such goods could not be well manufactured among us. The first broadcloth made by the power loom was at the factory of Arthur Schulfield, Pittsfield, Mass., in 1826. There are now in the same county (Berkshire) 924 looms and 97 cards in operation, producing annually 906,000 yards of woollen goods.

A FALSE GOLD NUGGET.—A large golden nugget, which had been exhibited in Paris as a California production, has turned out to be a lump of lead skillfully shaped and plated with gold. An investigation has been commenced to discover the author of the fraud, it having been sold for a genuine production.

AUSTRALIAN LIBERALITY TO THE PRESS—The Government of Melbourne has exempted editors of newspapers from serving on juries, and have remitted the fines of some for non-attendance. We hope our State Legislatures will soon enact a law of the same liberal character, for assuredly upon no class of men whatever do the duties of jurymen fall so heavily, or are more incompatible with their profession.

A DUTCH STEAM LINE—A line of steamships will soon be running between Holland and the United States. A new steamer, the first of the line, was recently launched at Amsterdam; the port from which it is to sail to New York.

A NEW KIND OF COAL IN AUSTRALIA—It is stated that Z Williams, one of the English Chartists who was banished to Australia, has discovered a bed of *yellow colored coal* in that country, which burns as freely as the best bituminous kinds. In all likelihood this will turn out to be a bituminous shale, and may be as valuable as any cannel coal. The discovery was made by accident.

THE CENTRIFUGAL PUMP FOR SUNKEN VESSELS.—J. S. Gwynne, of this city, has offered to raise the hull of the burned ship *Joseph Walker*, and place it on the dry dock for $5000. He offers good security for the performance of the work. The hull of this ship has occupied a berth for eighteen months, and has cost, we suppose, as much as $20,000 in efforts to raise it, all of which have failed of success. Mr. Gwynne has confidence in the power of his rotary pump to do the job easily, by enclosing the outside of the hull with canvas, and then pumping out the water. His proposition is good; why not give him a trial?

BEWARE OF EATING DRIED APPLES—Dr. F. Meigs describes a fatal case of cholera in the last number of the Philadelphia *Medical Examiner*, caused by eating one piece of a dried apple. The subject was a female somewhat delicate, but afflicted with no organic disease. Dr. Meigs speaks forcibly against eating even a small piece of such fruit. The period from the time of eating the piece of dried apple until death ensued, was not 24 hours.

LIGHT-HOUSES ON LAKE SUPERIOR—The Lake Superior *Journal* of 23rd ult., states, that on the 19th the schooner *Fanny* and *Floy* passed through the Sault Canal, having on board the superintendent, fifty men, and a full cargo of lumber, sash, glass, &c., all materials necessary for furnishing seven light houses. The following will be the locations of the light houses:—Round Island, Iroquois, Grand Island, Rock Harbor, Eagle River, La Pointe and Portage River.

[The vicinity of this lake is fast growing up into a *Superior* region.

BLACKBERRY DIARRHŒA CORDIAL—The following is said to be not only an excellent and pleasant beverage, but a cure for diarrhœa, &c: Recipe—To half a bushel of blackberries, well mashed, add ¼ lb. of allspice, 2 ounces cinnamon, 3 ounces cloves. Pulverize well, mix, and boil slowly until properly done. Then strain or squeeze the juice through homespun or flannel, and add to each pint of the juice one pound of loaf sugar. Boil again for some time; take it off, and while cooling add half a gallon of best cognac brandy. Dose—for an adult, half a gill; for a child, a teaspoonful or more, according to age.

As the blackberry season is at hand, this cordial should not be neglected to be made by every family. It is simple, good, and easily made.

Telegraph Lines on Railroads.

Having long thought of an improvement in the construction of telegraphic lines in connection with railways, but having never seen or heard of its being adopted, I beg to offer a few remarks upon it. My plan would consist in stringing wire, (insulated,) and covering it with the rails, as the rails on the Grand Trunk Railway are concave or hollow under, when laid, which would readily admit of such a plan, and it would be much *cheaper*, more *durable*, and would look better than lines built on the ordinary plan, for a much smaller wire would answer the purpose, and would save expense of *poles*, *insulators* and *repairs*, as it would never get out of order, and rain would have no effect, as it has on lines now in use. I hope to hear of this improvement being generally adopted, if found practicable. J. S.

Morrisburg Canada West, July 1, 1855.

A mowing machine trial took place at Dedham, Mass., on the 26th ult. The Judges have not yet declared the awards.

TO CORRESPONDENTS.

W. W., of S. C.—The ore which you send appears to be copper, but we could not tell you by mere examination the exact value of it; analysis is required for this.

E. C., of N. C.—Your plan of using wire cloth as a lining to prevent the entrance of rats and mice into dwellings, is not patentable. It would probably accomplish the purpose so long as the meshes could be kept from dampness and corrosion.

R. H., of W.—The bricks of stoves are cemented with fire clay, but that will not remedy the evil to which you refer unless you surround your stove in the wall with fire brick, and allow a little space for their expansion and contraction. You can find such fire brick for sale in this and other cities. Soap stone will answer your purpose also.

A. W. B., of Va.—Lumber saws, with their teeth arranged to cut both with the up and down stroke, are not new. Your device is quite old, and not patentable.

A. E. R., of N. Y.—Wagons arranged with cross reaches for turning short corners, are not new. You will find an engraving of this plan on page 148, Vol. 6, Sci. Am.

M. F. W., of Ala.—Stirrups made with a bar to prevent the foot from projecting too far through, as you propose, have long been known. We will send you the papers.

C. A., of Me.—There are quite a number of people who have invented "perpetual motion machines," but some how not one of them will operate. They go very well so long as they are helped by hand.

B. H., of N. Y.—We think there is a chance for a patent on your churn. It looks as if it was a good thing. Send us a model and government fee of $30 whenever you wish to apply for a patent.

J. W., of N. Y.—First, if an inventor files a caveat and then allows his neighbors to make and sell his machines for more than two years prior to applying for a patent, the government would refuse a grant if apprised of such use and sale. If ignorant thereof, and a patent should be granted, it would be invalid, and therefore good for nothing. Second, If a mechanic or partner assisting in the construction of an invention, actually suggests an improvement, he becomes a joint inventor, and his claims are entitled to regard. Third, Patents are granted only to the inventor, so that under the law a mere partner could not join in the application for a patent. 4th, If the government, through ignorance, should grant a patent for an improvement which had long been in public use and sale, such patent would be invalid, and a manufacturer could not be disturbed. He could do as he pleased about opposing the issue of the grant. His rights to make and sell would not be affected either way. The filing of a caveat would not alter the matter. Fifth, All business confided to our care is strictly confidential, we therefore decline to give the names of any individuals for whom we are soliciting patents. 6th, We shall be happy to conduct your case, and will do our best to obtain your patent.

R. K., of Mass.—By the last steamer we wrote to our London agents to have an assignment prepared of your patent, and sent out at once. Your letter we handed to Mr. De B. in person.

W. W. A., of Canada—It makes no difference if you do assign your right to the invention to a citizen of the United States, the purchaser cannot make an application for the patent in his own name, and therefore the fees are not in the least lessened. Every applicant for a patent is obliged to make an affidavit that he is the inventor, and moreover state the country he is a citizen of. It is not possible you perceive, therefore, for your friend to make an affidavit that he is the inventor, nor for you to swear that you are a citizen of the United States, so we don't see how you can get along without paying $500 as government fees if you desire a patent.

W. W. B., of Ind.—The walls of your ice house should be double and filled with either charcoal dust, dry straw, or dry saw dust. It is better to have the door on the top, but you will have to lift the ice with tackle.

L. P., of Ill.—Sheet copper made into tubes can be used by any person for a lightning conductor. Copper tubes are old and good kind of conductors. Make your lightning rods as thick as you like; the thicker the better.

J. E. of Ohio—There is not a first rate work on millwrighting in existence.

G. W. F., of Md.—A turbine wheel will work better in back water than an undershot. It app ars that a good one would answer your purpose well. If you mean that with less water you will have an increase of power, you must not expect this; but if by low-water you mean that of the river by which your fall is increased, of course your water power will also be increased, if you use the same quantity to drive the wheel. Howd's wheel has a good name from some who have used it.

W. H., of Albany, N. Y.—The strange notions to which you refer may receive attention at the proper time.

J. B., of N. J.—The filing of a caveat does not prevent a patent being issued to another party subsequently for the same invention. The placing of an invention in the hands of an authorized person, as mentioned in your letter, is of service in proving priority many times.

C. W. S., of Mass.—The claims as published by us, are in full, and are official. Mr. G. tells what he knows is not true, if he says that his claims for Aug. 22, 1854, as published by us was not in full. Of course it often happens that a correct understanding of the invention cannot be gathered from the mere claims. We will credit you $1 on your subscription.

E. T. L., of Va.—There is nothing new in your submarine telescope. It is a very old plan.

J. S., of N. Y.—We really do not understand your illustration to prove that re-action is not equal to action, with a piston moving in a cylinder containing water. If it proves anything, it is that the water acts the part of a piston, because it is incompressible, and is as good a medium for communicating action as a metal piston.

J. S. B., of Ohio—Make varnish with bronze powders—the various kinds of which you can purchase in stores which sell fine paints to artists. With these you can make different kinds of bronze for brass, copper, and iron.

J. L. F., of Ho.—Your theory no doubt is correct, and will readily be accepted, but the Academy of Sciences wants a remedy for the cholera. It is for this it has offered a prize.

J. G. H., of ——.—Yours has been received.

C. E. S., of Mass.—An æolian harp is simply a small box, with an opening in it to admit the wind, to act upon seven strings, strung horizontally on pins on a sounding board made of dry pine wood. It is placed under the window sill, and the wind allowed to sweep over the strings.

Money received at the Scientific American Office on account of Patent Office business for the week ending Saturday, July 7:—

S. H. G., of Ct., $30; G. C. K., of Mich., $30; E. B., of Mass., $250; C. D. W., of Wis., $25; A. G., of Mass., $25; C. & G. S., of Mass., $30; L. S., of N. Y., $20; H. T. R., of Mass., $25; E. F., of N. Y., $250; J. Q., of N. Y., $30; W. B., of Ct., $30; B. H. W., of Mo., $25; F. A., of N. Y., $30; A. W. W., of Miss., $20; W. N. G., of Ct., $55; A. E. K., of Ct., $30; L. O. R., of Ill., $25; G. W. C., of O., $55; M. McG., of Mich., $20; J. F., S., of N. Y., $20; S. B. W., of N. Y., $60; J. B. E., of N. Y., $20; H. E., of N. Y., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, July 7:—

L. E. P., of Miss.; W. B., of O.; B. H. W., of Mo.; C. D. W., of Wis.; A. G., of Mass.; E. B. G., of N. Y.; H. T. R., of Mass.: T. B. E., of N. Y; S. B., of O.; L. O. R., of Ill.; S. R. W., of N. Y.; H. E., of N. Y.

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Patent Claims—Persons desiring the claim of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office, stating the name of the patentee, and enclosing $1 for fees for copying.

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Models—We are receiving almost daily, models of inventions which have not the names of their inventors marked upon them. This usually prevents us from taking any notice of them whatever. We shall esteem it a great favor if inventors will always attach their names to such models as they send us. It will save us much trouble, and sometimes prevent the model from being mislaid.

Patent Laws, and Guide to Inventors—Congress having adjourned without enacting any new laws pertaining to applications for patents, we have issued a new edition of the old laws, which may be had at our counter or sent by mail. This pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office Price 12½ cents per copy.

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A NOVELTY—AMES' PATENT POLYGRAPH—A writing machine, advertised and illustrated in this journal on the 14th of April last, by D. Shepherd, Esq. Has had several improvements in the finish of the machine, has now an ornamental cast iron frame, plate glass writing surface, finished gearing, best gold pens, and will write two copies simultaneously, and fac-similies. A labor saving machine for the merchant superseding the copy press, being perfect pen-written copies, one in book if desired. For professional men and copyists a very great desideratum. Will be sent to order (enclosing $15,) by express or otherwise, to any section of the country, as directed. And with such orders propositions will be entertained to canvass territory for the sale of machines; to good canvassers very favorable terms will be given. H. BROWN, Sole Agent and Manufacturer, No. 9 Canal st., New York. 43 3*

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Science and Art.

The Art of Dyeing.—No. 29.

BLACK COLOR—Black has been, by philosophers, denied to be a color, but it deserves to be called a color as well as brown. It is produced by the combination in excess of the three rays, red, blue, and yellow. To say that it is no color because it does not reflect light, is just as correct a piece of reasoning as to say "it is not light itself." Every thing that we can distinguish by a quality of sight like a black piece of goods, independent of its form, may very correctly be called its color, as an artificial optical distinction.

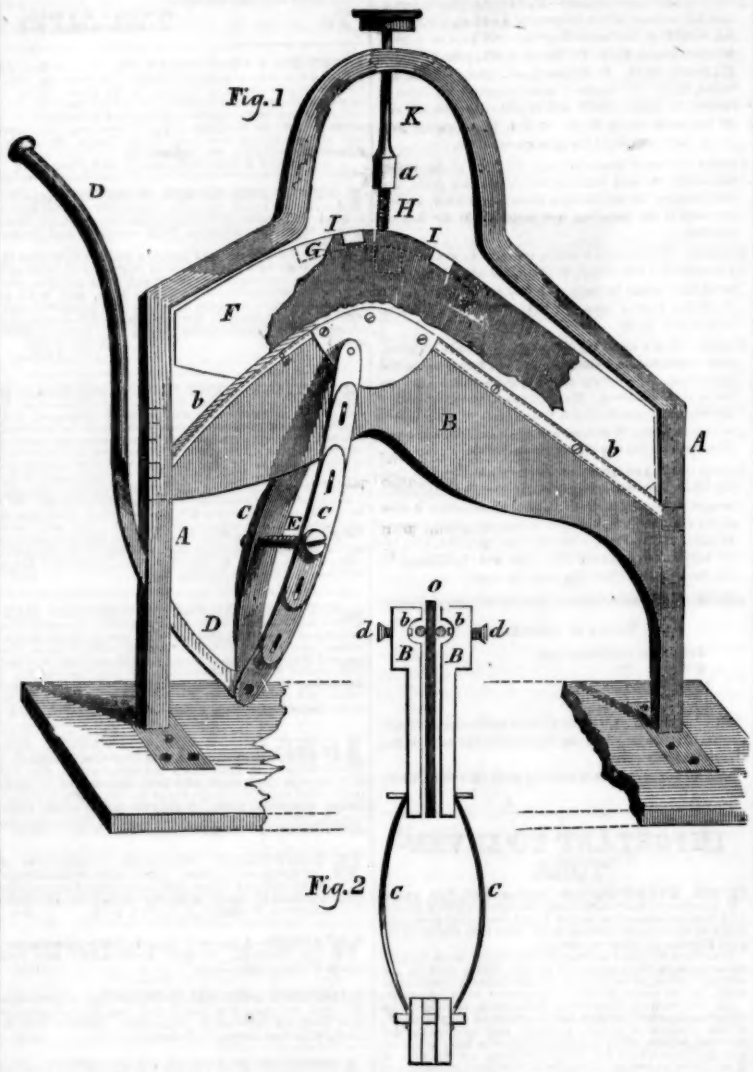
BLACK COLOR ON WOOLEN GOODS—A black color can be produced on woolen goods by dyeing yellow, red, and blue—the one on the top of another. Take five pounds of woolen goods, and dye them a deep yellow, by boiling them in the liquor of 2 lbs. of quercitron bark, and a pint of the spirits of tin (chloride of tin) in the boiler; this will dye a good yellow color. Take them out of this liquor, and dye them a deep red on the top of the yellow, by adding seven ounces of ground cochineal, 10 of cream of tartar, and half a pint of the chloride of tin to the liquor in the boiler. The goods are boiled in this for one hour, when they will be found a deep scarlet color. They are then lifted out of the boiler and washed thoroughly in cold water, and at last run through a tub of milk-warm water containing a little urine. They are then washed again in cold water, and are fit to be finished in the boiler. This is done by simply boiling them in a clear liquor containing good sulphate of indigo, which on white goods dyes a blue color, but will, when dyed upon the top of this scarlet-colored goods, produce a beautiful black. This color is too expensive to dye for common use; the method is merely given to show how a black can be dyed by using the very dye stuffs and processes for dyeing the three primary colors—red, blue and yellow. It is scarcely possible to give the exact quantity of the sulphate of indigo to produce the effect stated, but about one ounce to the pound of goods, if good in quality, is sufficient.

This receipt is very useful for the jobbing dyer, but not to the carpet or cloth dyer in the manufactory. When the jobbing dyer receives a red woolen shawl, or piece of red cloth to dye black, he can easily do this, by simply boiling it in a kettle with some sulphate of indigo. He can thus color such articles a good black, while he would utterly fail to do so by any other process. He may also dye old spirit claret-colored dresses a good black in the same manner—simply boiling them in a solution of sulphate of indigo. Deep purple can be treated in the same way, and with the same results, only a little fustic or quercitron bark liquor should be added to that of the chemic (sulphate of indigo).

IRON BLACK.—For ten pounds of woolen goods, boil them for one hour in thirty ounces of copperas and ten of the sulphate of copper, with three pounds of fustic liquor. They are then taken out, aired and dripped. The kettle is then cleared out, and the liquor of five pounds of good logwood introduced into it, and the goods entered when boiling They are kept boiling in this for one hour and a half, when they should be a full black color. If they have a slaty appearance, they require more logwood; if they have a full brown rusty appearance, it is a sign they have received too much logwood. By running them through a sour of very dilute sulphuric acid some of the logwood will be stripped off, and the color will assume a clear good shade. Goods intended to be fulled with soap are dyed very full in color, as the fulling strips off some of the logwood. The old fashioned way of dyeing black, was to boil the goods in a very strong logwood liquor first, and in the copperas liquor last. By giving the stuffs two or more dips, the color is rendered more durable. The fustic is employed to throw the color on the *jet shade*. If this be left out of the bath, the color will be a blue black. Old dresses, coats, &c., of various colors, such as greens, drabs and browns, may be dyed a good black by this process. Farmer's wives may dye their own stockings, &c., a good black by the method described. They must boil them well—not less than an hour—in both the copperas or mordant, and the logwood liquors. To prevent them *crocking* off, they must wash them well, and that in a strong solution of soap suds; after this they receive three or four rinsings in water.

By adding about one ounce of tartar to the pound of goods, in the preparation or mordant, and rinsing them in two cold waters after they have been boiled in the mordant—leaving out the fustic—and then dyeing, as has been described, with the logwood, a beautiful blue black will be the result.

BOOT CRIMPING MACHINE.



The annexed engravings represent an improvement in machines for crimping boots, for which a patent was granted to Hosea B. Horton, of Northville, Michigan, on the first of May last.

The distinguishing feature of this improvement is the introduction of an adjustable wire or its equivalent in the face of the jaws, by which the wet leather is more effectually compressed, particularly when it is of varied thickness; this machine performing the action of the hand hammer, of *peueing*, spreading or stretching the leather in these thin places to take out the wrinkles in them. In 1846, this was attempted by the employment of jaws, by H. S. Davis, these jaws having rigid projecting teeth or scrapers; but these passed over thin places, and did not remove all the wrinkles. The movable or adjustable wire in this machine may be readily projected beyond the face of the jaw, at any point found necessary to effect the desired object. A second new feature in this machine is the arrangement and combination of the clamp or holder of the leather, when crimping, that the stretch of it shall be maintained by set screws passing through the clamp, operating against the edge of the crimp, forming a mold, thus preserving the crimp on it; when the "former," with the crimped leather on it, is removed from the machine, for the reception of another crimp and "former."

Fig. 1 is a side elevation, and fig. 2 a cross section. A A are uprights of a metal frame secured to the floor by flanges, which form ways for the jaws, B B, to slide on in the vertical movement thereof. The uprights, A, form an arched frame at the top. The jaws, B B, interlock and clasp upon the uprights, and can move thereon, and can separate slightly from one another. C C is an elliptic spring; one end embraces the jaws, and the other is connected with the lever, D, by which the jaws are made to slide up and down, and to "slick" over the wet leather. This spring serves as a pitman and means of compressing the jaws towards each other, the grasp being regulated by the screw bolt, E, passing from plate to plate of the spring. F is the crimp-form or mold, which is placed between the uprights, and sustained in place by the angles of the frame, and a thin cross girt, O, below it. This girt also serves as a guide to the jaws, keeping them slightly open. G is an angularly formed metal clamp, conforming in a degree with the back edge of the crimp-form to which it is applied. It is tapped to receive the screw, H. I I are clamps, which being placed over the edge of the angle-clamp, with the leather on each side thereof, between I and G; on being slightly driven with a hammer, the leather is locked to the clamp; the center clamp is placed on the angle of G, through which the saw, H, passes. K is a turn wheel, the stem of which passes through the arch of the frame, and has an open link, *a*, through which a pin is inserted.

When the screw, H, is to be turned, on the removing of the pin, *a*, the crimp-form may be detached. *b b*, fig. 2, show a cross section of the wires laid in the grooves near the edge of the jaws. *d d* are set screws tapped in the thickness of the jaws, the ends of which project or force out the wires as may be desired, when turned, so as to bring the pressure of the jaws upon those thin places of the leather, which would escape the crimping action, if the jaws were not thus made to conform to the inequalities of the leather operated. A piece of wet leather having been laid across the jaws, the lever, D, forces them upon the crimp-form, F; and by the repeated sliding up and down of them, it is smoothed, and assumes the proper crimped form. Should any thin places be noticed in the leather, with the wrinkles not perfectly taken out, the nearest set screw, *d*, is turned, and the wire, *b*, is made to project beyond the face of the jaw; this is all that is necessary. Having forced the edges of the leather above the crimp-form, and on to the angle iron, G, the clamps I I are driven over. In turning the stem, K, with one hand, and with it the screw, H—the jaws being moved by the other hand—the screw, H, presses against the crimp-form, and draws the leather tight on it, thus completing the operation. The inventor states that one hundred pairs of boots can be crimped on this machine in a day.

More information may be obtained by letter addressed to Mr. Horton.

Fleas, Bed-bugs, &c.

A writer in the *Gardener's Chronicle* recommends the use of oil of wormwood to keep off the insects above named. Put a few drops on a handkerchief or a piece of folded muslin, and put in the bed haunted by the enemy. Neither of these tribes can bear wormwood, and the hint is especially commended to travelers who are liable to fall among the topers of blood.

[This receipt can easily be tried. We do not endorse it. Cleanliness is the best specific for the above pests of the human family. Still there are so many houses where they are naturally so numerous that this receipt may be very useful to many persons. Corrosive sublimate dissolved and mixed with turpentine and a solution of common salt, is a good specific for bed bugs.

MECHANICS

Inventors, and Manufacturers

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